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THE ARCHEOLOGY OF THE SHEEPEATER BATTLEGROUND

and

REDFISH OVERHANG SITES

Settlement Model for Central Idaho

by

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PREFACE

This report was originally written in 1975 as a Master's Thesis at Idaho State University in the Department of Anthropology. After Dr. Evan DeBloois requested that I allow the Forest Service to publish it as part of their technical series, I had the opportunity to clarify some of the points made in the report and also to improve the quality of the illustrations. On the whole, it is only slightly different than its original form.

I appreciate the interest of the Forest Service in this research, and hope that it makes more people aware and concerned with the archeological and other fragile resources of this yet unspoiled area. Unfortunately, the tourist boom I felt coming in 1971 has arrived. Conversations with residents and friends, along with my personal observations, indicate that in Stanley Basin scenic areas are deteriorating more rapidly today than earlier in this decade. Surely, the archeology cannot be any less endangered. Positive steps are needed now to better manage the entire area to preserve that which we value.

I wish to thank Erica Hansen for her skillful drafting of Figures 14, 17, 19, 21, 22 and 25. Marion McDaniel prepared the maps in figures 12, 14, 5 and 8, and Linda Verret carefully drew the artifacts in figures 12, 13, 15, 16, 18, and 20. Chris Talkington, a member of the 1971 field school, photographed the scenes shown in Figures 6, 7, and 24.

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I. HISTORY OF INVESTIGATIONS IN STANLEY BASIN

The history of archeological investigations in the Stanley Basin (Fig. 1) of central Idaho, like that of the rest of the state, is extremely brief. The first attempt to assess the area's archeological potential was a small survey carried out for the U. S. Forest Service (Bowers 1964). The survey reported the archeological resources of the area to be limited and insignificant. Additional research since that time, particularly the work reported herein, has shown this to be a premature judgement based on insufficient data.

Between 1964 and 1971, no additional archeological work was conducted in the Basin; during this time the area began to be affected by an increase in tourism and related recreational activities. In 1971, the Idaho State University Museum Field School, under the direction of B. Robert Butler and the author, initiated a small-scale survey and excavation operation in Stanley Basin. Much of the survey work during the first season consisted of relocating and evaluating known sites and developing background information on the area. The results of this survey have been reported elsewhere (Gallagher 1971).

Only one site was excavated in 1971; this site, located by (Bowers 1964) in the northern end of the basin, appeared to have some potential. The field school camp was established near this site (Sheepeater Battle-ground 10-CR-202) and it was used as a base of operation for both the survey work and for training students in excavation techniques. The analysis of the results of the excavation at Sheepeater constitutes a major portion of the thesis. Also during this field season, the Red Fish Lake Overhang (10-CR-201) was tested. This site was endangered by the proposed construction of a sewer line servicing the Red Fish Lake visitor's center. The U. S. Forest Service sought the advice of the museum in order to mitigate the impact of the construction.

The results of both excavations convinced the author that additional work in the Basin was necessary for adequate interpretation of the data already recovered, and thus further research was scheduled for 1972.

The field school was considerably larger the second season. The U. S. Forest Service authorized full-scale excavation of the Red Fish Lake Overhang and testing of the Dancing Cat Site (10-CR-233), which was likely to suffer direct impact when the sewer line was installed. The Basin Creek Site (10-CR-213), which we originally believed was a single component late prehistoric site, was excavated also. Additionally, the Old Stanley Ranger Station Site (10-CR-200) was tested because of the reported recovery of significant archeological material. Butler had earlier excavated a single trench in the vicinity of the Old Stanley Ranger Station Site with only minimal results.

The amount of effort expended in the Stanley Basin was considerable, and has proved to be productive. However, much more research needs to be conducted on the archeology of central Idaho. If some balance can be struck between the crunch of tourism and a relatively fragile environment, not only will the archeological resources of the area be preserved for future workers, but also succeeding generations of Americans will be able to enjoy this beautiful country.

Archeological Problems

There were essentially three problems to be confronted in Stanley Basin at the start of the 1971 field season. Two of these were theoretical; one was immediate and more practical. Bower's (1964) survey has already been mentioned. His assessment of the archeology was that the Stanley Basin was marginal to areas occupied by unspecified " . . . groups living at lower elevation . . . " (Bowers 1963:3). The implication of the report was that there were very few archeological resources in Stanley Basin worth examining. One theoretical problem then was to determine if Bowers' interpretation was correct, especially since it was not based on excavations.

The second theoretical question relates to hunting practices and the distribution of bison in the Basin. Historical evidence is conflicting in reporting the presence of bison in this valley (Ferris 1940; Ross 1956). If bison had been present in the area, it might be possible to compare archeological evidence of hunting practices of the aboriginal inhabitants of the central Idaho mountains with the hunting practices found on the Snake River Plain, since the latter were fairly well known (Gruhn 1961a; Butler 1968, 1971; Miller 1972). The differences between hunting practices, not just of bison but also of mountain sheep, elk, deer, etc., in the mountain environment and in the sagebrush grassland was thought to be significant in light of the ethnographic distribution of Shoshoni peoples in Idaho.

The third problem was to determine the effect of the booming tourist business on the archeological resources. What was the nature of the archeological resources; were sites located in protected areas where access would be difficult to both the archeologist and campers; were sites usually buried and hence protected; was pot-hunting common. These and similar problems had to be considered.

Two of these problems are considered here. First, Bowers' assessment of the archeological resources of the Stanley Basin was inadequate. Over 40 sites were surveyed and recorded within a restricted area of the Basin and probably there are many more sites yet unrecorded. Also, many of these sites were quite significant both in terms of antiquity and the amount of archeological material present. Bowers' belief that the archeological resources of Stanley Basin were insignificant has proved unfounded. It remains only for additional research to demonstrate just how much can be learned in this area.

The problem of tourism and its direct and indirect impact on the archeological resources can be summed up in one word - severe. Possibly more than in other areas of the Pacific Northwest, the archeology of the Stanley Basin (and most of the Salmon River drainage) is in serious jeopardy because: 1) the flow of people into the valley is increasing yearly; 2) the locations attractive to tourists frequently were attractive to the aboriginal populations as evidenced by the presence of sites in those areas; and 3) the sites in this Basin tend to be shallow and susceptible to total destruction with minimal land improvement. Every time portions of land are cleared, sewer lines built, or new houses are constructed, the resources in those areas are irretrievably lost. Fortunately, the government agencies responsible for the protection of these resources are rising to meet this challenge. The duty to preserve these sites cannot be the burden of federal agencies alone; private business must also be made aware of its role as protector of these important cultural remains.

The remaining problem of defining the distribution of hunting patterns was not examined in detail. Information on butchering practices, seasonality, herd conservation, and selectivity necessitates the recovery of appreciable amounts of faunal remains. Unfortunately, such remains were not recovered in sufficient amounts to allow interpretations of hunting practices.

Report Problem

The problem selected for examination in this report was not formulated prior to the 1971 season. Had a more detailed research design (Binford 1964) been formulated before the field work, we possibly could have been more flexible in the questions we now seek to answer. However, there are two areas where this report make a contribution to knowledge of the prehistory of Idaho, since a great variety of data was collected. First, the report will describe the cultural material from an archeologically unknown portion of the region, thus, providing a body of comparable material that will be useful to future researchers. Second, it will propose a model of the prehistoric settlement pattern which can be tested in future explorations in central and western Idaho.

The use of the settlement pattern concept (Chang 1968) and attempts to define actual settlement patterns in Idaho are infrequent (Swanson, King and Chatters 1969; Harrison 1971). Most of the archeological work in the state has been directed toward the establishment of chronological sequences of artifacts (Delisio 1970; Gruhn 1961a; Swanson, Butler, and Bonnichsen 1964; Powers 1969, Delisio 1970; Ranere 1971; Swanson 1972). This results in well defined and tight chronological control of artifact assemblages, but the construction of these vertical schemes has been at the expense of the horizontal data from sites and from larger regions. After more than ten years of research in Eastern Idaho, Swanson (1972) amassed and synthesized a considerable amount of data. Yet, very little is known about the prehistoric settlement patterns in this area.

Besides describing the archeological data from three sites in Stanley Basin, this report will suggest a model of the aboriginal settlement pattern in central Idaho based on the available ethnographic data. This model will then be examined in light of the archeological data presented in the report and from other sources. Previous attempts at defining settlement patterns in Idaho are reviewed and discussed.

II. STANLEY BASIN, THE NATURAL SETTING

The Stanley Basin is located in the central Rocky Mountains of Idaho about 49 miles north of the resort village of Sun Valley, in the Challis National Forest (Fig. 2). The basin is a long narrow trough which is bordered on the south by Galena Summit and on the north by the Salmon River Range. On the west, the 10,000 foot Sawtooth mountains dominate the landscape while the lower White Cloud, Boulder, Pioneer chain parallel the Sawtooth mountains on the east. The valley is approximately 45 miles long, stretching 27 miles north from Galena Pass to the town of Stanley; there it doglegs northwest another 18 miles to the headwaters of Valley Creek (Fig. 2). Within the basin, the elevation varies from about 7,000 feet elevation at the foot of Galena Pass to about 6,200 feet elevation near Stanley.

Geology

The geology of Stanley Basin is complex and not well understood. Umpleby and Livingstone (1920), postulated the origin of the basin (on the basis of steepness of the Sawtooth Range) as part of a high-angle range front fault. Williams (1961:4) accepts this proposed origin noting that ". . . positive proof of tectonic origin cannot now be demonstrative . . . ." The White Cloud, Boulder, and Pioneer Mountains, which all stand at less than 9,000 feet elevation, contrast sharply with the heavily glaciated Sawtooth Range. These mountains on the east side of the basin are highly deformed paleozoic rocks probably of Mississippian age. During the Pleistocene, the basin was heavily glaciated. Glacial deposits from two advances, Bull Lake and later Pinedale, cover the valley floor, except to the south where paleozoic sedimentary rocks have been noted (Williams 1961:4). Ross and Forrester (1958:Fig. 1) include the Stanley Basin in the northern Rocky Mountain province. They state that (1958:38):

> Within Idaho, the Northern Rocky Mountain Province comprises a mass of mountains, carved mainly in massive rocks, with somewhat accordant summit levels and an irregular stream pattern. The topography of this region is the product of several incomplete erosion cycles, and the streams have been controlled, in large part, by geological structures.

The River System

The drainage pattern of the Stanley Basin is dominated by the main fork of the Salmon River and a primary tributary, Valley Creek. Rising in the southern part of the basin, at the foot of Galena Pass, the river flows north cutting a channel through glacial outwash debris. There are rapids and shallows along the river, and in its broad braided sections spawning beds of anadromous fish are found. Numerous smaller tributaries flow into the Salmon along its course through the basin, creating marshes and meadows throughout the bottomland. Valley Creek drains most of the northern end of the basin and, like the Salmon, has many small tributaries and marches along its course.

Part of the very northern end of Stanley Basin is cutoff from the main fork drainage by a low divide. On the north side of the divide, Marsh Creek and Cape Horn Creek join and flow north into the Middle Fork of the Salmon. In the same part of the basin are the headwaters of Canyon Creek, which flow into the South Fork of the Payette River. All of these rivers had, at one time, major salmon runs (U.S.F.S. Report 1965). Today, only in the main fork are there significant numbers of these great migrating fish. Notably, the Sheepeater Site is located at the headwaters of all three of these important rivers.

Climate

The climate of Stanley Basin is cooler and more moist than of surrounding areas. The basin received about 40 inches of precipitation each year; about 85% of this falls as snow (Environmental Data Service 1971). The mean temperature for January 1971, was 29.8^{o}F. The extremes for the month were 54^{o}F and -43^{o}F. For July of the same year, the recorded mean temperature was 57^{o}F; the extremes were 86^{o}F and 29^{o}F. During the 1972 field season it snowed in July. Tricart (1970:22) describes similar areas as characteristic of "Mountain Type Climates," with low temperatures due to altitude rather than latitude. Within this zone, Tricart lists three factors which have morphogenetic significance: 1) frost action, caused by the alternating cycles of freeze and thaw; 2) running water which seasonally, at least is capable of removing the detritus from frost shattering, and 3) "the relative unimportance of wind action, which is checked by the snow cover and humidity, while the relief prevents winds becoming strong and constant over large areas," (Tricart 1970:23).

Flora and Fauna

Within the valley there are nearly 4,500 feet of relief which would normally exhibit well defined vegetation zones. A number of factors have affected the vegetation patterns within the basin, all of which tend to distort the natural distribution of plant communities. Natural factors which contribute to the blurring of the zonal patterns include slope exposure, moisture, altitude, and wind. These factors cause interfingering of various communities along protected slopes and in well-watered areas. Logging and fires have also disturbed the natural forest zonation in the Stanley Basin, but probably less so than the natural factors mentioned above.

The floor of the valley compares well with Davis' (1952:6) definition of the Fescue wheatgrass zone within which large perennial forbes are the true dominants. Some forbes included in this zone are Heliathella douglasei, Balsamorhiza sagittata, and Potentilla flabelliformis. Grasses found in this zone include Festuca idahoensis and Agropyron spicatum. In the wet meadows which occur throughout the valley and which are common in Fescue wheatgrass zones wild iris (Iris missouriensis) and camas (Cammasia quamash) are to be found. The former was used as a slow but effective poison by the native population, and the latter was

part of the Indian population's diet (Liljeblad 1957, 1972). Camas appears to be confined to the northern end of the basin, northwest of the town of Stanley, near the headwaters of the Middle Fork of the Salmon and South Fork of the Payette, and along Valley Creek.

As mentioned above, forest zonation is not well defined through most of the basin, but near Smiley Creek in the southern end of the valley the natural forest pattern seems to have been preserved. There, four zones are clearly visible in what appears to be the normal altitudinal order. Starting at the Valley floor there is a lodgepole pine zone (Pinus contorta), a Douglas fir zone (Pseudotsuga mengiesii), a spruce zone (Picea engelmanni) and an alpine fir zone (Abies laseocayre). Ponderosa pine (Pinus ponderosa) is not found in Stanley Basin, but is common in the major river valleys to the west.

Wildlife is abundant in the basin. Large mammals include mountain goat (Oreamnos americanus), deer (Odocileus sp.), elk (Cervus canadensis), antelope (Antilocarpa americana), bobcat (Lynx rufus), mountain lion (Felis concolor), bear (Ursus americanus), coyote (Canis latrans) and wolf (Canis lupus) (U.S.F.S. Report 1965). There were once mountain sheep (Ovis canadensis) in the area, but they are now extinct (U.S.F.S. Report 1965:7). Small mammals are plentiful, including raccoons, weasels, beavers, squirrels, marmots, gophers, rabbits, shrews, bats, and foxes (Anthony 1971).

Anadromous fish can be found in the Salmon River and its tributaries. Starting in late May and tapering off in late September, major runs of migratory fish make their way into the upper reaches of the river. There are two species of salmon, sockeye (Oncorhynchus nerka) and chinook (Oncorhynchus tshawytsch), and one species of trout, steelhead (Salmo gairdneri gairdneri), which migrate yearly. Also in the valley area are kokanee salmon (Oncorhynchus nerka kennerlyi), a nonmigrating subspecies of sockeye for which Red Fish Lake was named. Other native species include cutthroat trout (Salmo sp.), rainbow trout (Salmo gairdneri), and white fish (Coregonus sp.).

III. ETHNOGRAPHIC PATTERN

The Use of Ethnographic Data

The importance of ethnographic data for the archeologist depends primarily on its nature and quality. Ethnographic data can be used by the archeologist effectively, primarily, in two ways: first, to provide the basis from which analogies about archeological data can be drawn (Binford 1967); and second, to serve as a body of literature from which models can be constructed and tested using archeologically derived information.

Archeological evidence for the existence of man in Idaho suggests an occupation that began as much 14,000 years ago (Gruhn 1965). Through most of that time, numerous changes in cultural materials and subsistence patterns occurred. Less than 200 years ago, a new element was added to the culture of these people, i.e., the horse. As Liljeblad (1957) points out, not all the native Idahoans adopted the horse and attendent Plains life style, but its effects were felt by all. With the horse came white trade goods, and later the whites themselves arrived: first the trappers, then the settlers, the miners and the military (Liljeblad 1957:69). By 1880, most of the Shoshoni were living on reservations established by the government (Liljeblad 1957:69). In the hurry to civilize these Indians, no one seems to have gotten to know them as they were. Most of the early works on Idaho history and culture which discuss the aboriginal inhabitants are misleading (Lijeblad 1957:122) and tend to lack good descriptions of aboriginal life.

Modern ethnographic work was not begun until the twentieth century, and really substantive works were not written until nearer the middle of the century (Steward 1938, Liljeblad 1957, Murphy and Murphy 1960). These factors have tended to reduce the amount of information about pre-horse Shoshoni culture, a period which constitutes the bulk of the prehistory of the Shoshoni, and which would seem to contain the most useful data for the archeologist.

Shoshoni Populations in Idaho

This section of the report will focus primarily on aboriginal population distributions; thus no attempt will be made to present a detailed overview of aboriginal Shoshoni culture. Instead, we will attempt to describe these populations in terms of geographical areas, seasonal movements, and the types of seasonal settlements reported for these areas. This approach falls under what we have described as the second use of ethnographic data.

Various authors have divided the aboriginal population into different regional groups. The Murphys (1960) suggest that it is possible to divide the Shoshone-Bannock population roughly into six groups which are

more or less discrete socio-political bodies. These groups are (Murphy and Murphy 1960:315): 1) the Boise and Weiser River Valley population; 2) the Middle Snake River population which includes the area between Glenn's Ferry and Shoshone Falls; 3) the Sawtooth Mountain population or Sheepeaters; 4) the Bannock Creek and Bear River Valley population; 5) the Upper Snake River and Fort Hall population; and 6) the Lemhi River population (Fig. 3). The Murphys (1969:315) state these populations consist primarily of people ". . . who lived under similar ecological conditions and dwelt in geographic contiguity. Some shared roughly the same nomadic pattern and united upon occasion for diverse reasons. . . ." The authors add (Murphy and Murphy 1960:316):

> It should be remembered that the Indians of our six regions frequently wandered far from the areas designated. The areas, then, were centers of gravity in a migratory life. They were areas where subsistence was commonly obtained by the populations in question and, more important, where winter, the most sedentary season of the year was passed.

Steward (1938:165, 172, 186) has designated three major areas of Shoshoni occupation which are of concern to us: the Snake River, the Boise River and vicinity, and the Lemhi and central Idaho areas. These areas encompass most of the divisions suggested by the Murphys (1960), and in his discussion of each area, Steward clarifies, as much as possible, the internal divisions within these geographical areas.

The population along the Snake River consisted of people who wintered in, and near, the river bottom between Twin Falls and the Bruneau River (Steward 1938:156-165). The Lemhi and central mountain population refer primarily to the Sheepeaters or Tukudeka. These people lived in the rugged mountains through which flow the Salmon River and its main tributaries.

The aboriginal occupants of Eastern Idaho, probably more than in any other part of the state, had been heavily influenced by the "horse culture" or Plains life style. Prior to the arrival of the horse, the Lemhi and central Idaho areas appear to have been nearly identical in most aspects of daily life. "The distinction between mountain [central] and Lemhi Valley Shoshoni, which is of some importance to the present study, has not, however, always been revealed by the terminology applied to these people," (Steward 1938:186). Steward (1938:187) distinguished between these populations, calling the mountain people "Tukaduka," and the population on the Lemhi River, the Lemhi. Unlike the Lemhi, who spent much of their time hunting buffalo on the plains to the east, the Tukudeka remained isolated in the mountains until comparatively recent times.

The Boise River group is probably the most heterogeneous of the three. Steward (1938:172) reports that:

> This population was neither well defined politically nor territorially. It was scattered in small, independent villages of varying prosperity and tribal composition. Along the lower Snake, Boise and Payette Rivers Shoshoni were intermixed with Northern Paiute who extended westward through the greater portion of southern and eastern Oregon. Slightly to the north they were probably mixed somewhat with their Nez Perce neighbors.

Because this area was frequented by the Nez Perce, Shoshoni from Fort Hall, central Idaho and the Lemhi area, it is likely to have been a temporary trading area (Steward 1938:172).

Much of Liljeblad's (1957) discussion of the Shoshoni and Bannock groups of southern Idaho is directed toward unraveling the conflicting historical accounts of the composition of various mounted bands; at the same time he devotes a great deal of effort to correcting early accounts of these people who were frequently described as renegades and bandits. This attitude was prevalent among the early writers' descriptions of the mountain Shoshoni or Sheepeaters (Liljeblad 1957:94-95).

Liljeblad is less precise in his divisions among the various aboriginal populations. While he recognizes some distinctive regions such as the Boise, Payette and Weiser River Valleys (Liljeblad 1957:62), he tends to see greater interaction and homogeneity than other authors. He argues that ". . . the produce of subareas was sufficiently different to cause local specialization. However, since technological inventory was very limited and known to all, any group might move temporarily into any locality and exploit its resources in full . . . ." (Liljeblad 1957:54).

Despite the possibility of widespread movements, there seems to have been a considerable amount of what is described as "local specializations." The subsistence activities of the Tukudeka were different from those of the more Great Basin-like peoples living along the Snake River. Not only were they essentially a hunting people (Liljeblad 1957:96), "But in contrast to all other Shoshoni on a pre-horse level, they belonged to the Plateau rather than to the Basin, and they had developed their sort of Plateau culture of a high degree of perfection," (Liljeblad 1957:95).

Besides the Boise-Weiser Rivers population and the central mountain Tukudeka, Liljeblad (1957) also discusses the Lemhi Shoshoni population and a Fort Hall population. In fact, they hold a dominant role in the picture of prehistoric life as described by him. For the most part though, the dominance of these groups has been a recent phenomenon associated with the acquisition of wealth and prestige resulting from bison-hunting and other characteristics of Plains culture, and they probably were not so dominant in pre-horse times.

In southern Idaho, there were in prehistoric and protohistoric times, several more or less apparently distinct populations. Several inter-related factors are needed to explain the differences: geography, climate, geology, vegetal resources, availability of game (especially

anadromous fish) historical factors, and so on. Despite suggestions to the contrary (Steward 1938:230), the environment was not a constant, as Liljeblad (1957:54) has argued. Resources were not available equally at all times and in all places. Indeed, the tendency of the aboriginal population to describe neighboring peoples by the resource they currently or predominantly exploited was both a matter of convenience and a manifestation of the fact that food and game supplies were highly localized. The habit of naming people in this manner has caused a good deal of confusion in the literature. As an example, Steward (1938:172) reports that near the Boise River:

> The general name for the people of their area was Yahanduka, Groundhog Eaters, though they imperceptibly merged with the Agaiduka of the Snake River and the Tukaduka of the mountains of the north. WH called them Yahanduka only so long as they remained in this region. He said families sometimes went south into Nevada for pine nuts, and were then called Tubaduka.

Despite the difficulty in unraveling the names and places, we can attempt to reconstruct the movements of the residents of these areas. Admittedly, the job would be easier if there were good data on resource seasonality, but because these populations tended to return each winter to nearly the same village, we can use wintering areas as starting locations in the reconstruction of seasonal movements. As pointed out, these areas were "center of gravity" in the yearly migratory round (Murphy and Murphy 1960:316). The analysis of the seasonal round will focus on the Boise-Weiser River population and the Tukaduka population, as these were the two groups known to utilize the Stanley Basin ethnographically (Murphy and Murphy 1960).

The Boise-Weiser Rivers Population

The seasonal round of the Boise-Weiser River groups probably is better understood than that of the central mountain population. This area was relatively lush and it was possible to exist year round without leaving the immediate locale. The streams were full of fish, the salmon runs were heavy, and the valleys were rich in game and roots such as camas (Murphy and Murphy 1960:318). In addition to the relatively abundant resources, the climate was mild and winters were not severe.

Wintering locations were most common along the Boise, the Payette and the Weiser Rivers, but the exact position of villages might shift from year to year. Village size and personnel fluctuated annually (Murphy and Murphy 1960:319). Villages were not large; Liljeblad (1957:82) describes them as a scatter of grass huts. During the winter and early spring, most economic activities were conducted close to the village. Hunting was important in the winter; both large game, (antelope and deer), and small game such as rabbit, sagehen and grouse were hunted. During the winter, caches of jerked meat and dried vegetal foods accumulated during the previous fall were relied upon heavily.

By March, the first salmon were in the rivers; and throughout the spring, fishing was the dominant subsistence activity. There were two runs of these fish and until late May, the population remained near the wintering areas, fishing and living in small villages (Murphy and Murphy 1960:319). The Murphys point out that the abundance of fish in the Boise-Weiser area made it unnecessary to go to "the great salmon fisheries in the vicinity of Glenn's Ferry and upstream to Shoshone Falls," (Murphy and Murphy 1960:319).

The major migration of these people occurred during the summer when they went to Camas Prairie (Murphy and Murphy 1960:319). Liljeblad (1957:82) states this was the farthest distance this population ever traveled. At Camas Prairie, roots were dug and dried in preparation for winter. Considering the homeland for these people was well endowed with the same vegetal products and that without horses the amount of dried roots carried back was limited, it was possible that the social aspect of the journey was paramount. Because of the abundance of food found here, a sizable portion of the native population was able to congregate in one spot. In fact, Camas Prairie possibly supported more Shoshone for a short period of time than any other area in the whole of the Great Basin.

Before the end of the summer, this gathering began to disperse. The Boise-Weiser population made ready for the winter by intensifying hunting and fishing. In the fall, there was another salmon run which reached as far as the upper portions of the Boise and Payette Rivers, in the Stanley Basin. Hunters also took a fair amount of game there along the headwaters of the Salmon River (Murphy and Murphy 1960:319). Throughout these mountains, camps of three or four families were set up and the population was more spread out than during the rest of the year. Before winter arrived, (as early as October 1st), the hunters had their meat dried and were packing back down the river valleys to that year's wintering area.

We can recognize three settlement foci for this population. First, there was a winter/spring village occupation in the Boise and Weiser valleys probably close to the Snake River but extending up the valleys certainly as far as the city of Boise on the Boise River, Emmett on the Payette River, and Crave Creek on the Weiser River (Murphy and Murphy 1960:319). There may also have been some winter/spring village occupations along the Snake River near the mouth of the Bruneau River, but this remains to be investigated.

In late spring and early summer, most of the population moved to Camas Prairie; because of the large influx of people from the surrounding areas, it seems likely that villages would again spring up. Other authors never actually state there were villages as Camas Prairie, but they describe the movement of people to these root digging grounds as ". . . a large-scale annual exodus . . . ," (Liljeblad 1957:65). It appears the concentration of people at Camas Prairie probably resulted in groups equally as large as any winter encampment, possibly larger.

The fall seems to be the season of the year when the Boise-Weiser population was most dispersed. Information about exact movements is scarce, but during this time the population broke up into small hunting units which when camped consisted of three or four lodges (families) (Murphy and Murphy 1960:319). Most hunting took place in the mountains north and west of Camas Prairie.

Thus, the three occupation foci are winter/spring villages in the Boise-Weiser area, summer villages in the Camas Prairie area, and small multi-family camps in the mountain valleys in the fall. Steward's (1938:172) suggestion that the Boise-Weiser population ". . . imperceptibly merged with the Agaiduka of the Snake River and the Tukaduka of the mountains to the north. . .," would seem to suggest similar movements to those we have outlined, but is unlikely that the Shoshoni population of southwestern Idaho was as amorphous as Steward indicates. The Murphys (1960) likewise disagree with Steward's assessment of the structure of this population.

The Central Mountain Population

The movements of the Tukudeka of the central mountains are difficult to reconstruct precisely. Liljeblad (1957) has argued that these Indians were very Plateau-like in many respects; while the Murphys (1960) indicate the Tukudeka were in contact with both the Boise-Weiser population on the south and west and the Lemhi on the east. While there are serious problems in pinpointing the migration cycle of the Tukudeka, it seems possible to identify at least two foci of occupation. The first is winter through early summer village, the second is extended family to small (2-3) multiple family late summer/fall camps.

The winter/summer villages are located along the Salmon River and its major tributaries. Liljeblad (1957:96) has pointed out that, ". . . as elsewhere in the Plateau area, fishing brought many families together during the salmon season; and people who fished together also wintered together in villages of considerable size near the salmon streams. . . ." The salmon season begins in this area just as the most severe winter conditions are abating, usually in late May, and extends through July (I.F. and G.D. 1968). Whether there was a need to move from the winter villages to fish is not clear. Within the Stanley Basin, salmon could be taken year round, as the nonmigrating kokanee salmon live exclusively in fresh water environments, such as Red Fish Lake.

The occupation of these villages may have extended from the beginning of winter until late July, with considerable movement in and out of the village for hunting and root gathering purposes. The size of these villages was probably variable, but those along the Salmon River which Steward (1938:187-188) lists are Pasasegwana, 30 families; Sohodai, 6 families; Bohodai, 20 families; Pagadut, 40 families; and an unnamed location with a few families.

During the remainder of the year, small groups of two or three families hunted and gathered food together (Steward 1938:187). Depending on the abundance of salmon and the quality of hunting near the village, these small mobile families may have set out on their own earlier in the summer. Once the winter snows had melted and root digging became feasible, the village population probably shrank considerably, only those near choice fishing grounds retaining any number of people.

The primary activity of these small family groups would be root digging in places like Poker Flats or Ayres Meadow where camas is still abundant. Hunting would also be important; both activities would intensify as winter approached and as the need to build up stores became paramount (Steward 1938:190).

There is a third possible occupation area of Tukudeka, at Camas Prairie. The information regarding the activities of the Tukudeka at Camas Prairie suggests that probably the number of individuals who made the journey was small, and that the trip was undertaken only occasionally (Steward 1938:188; Liljeblad 1957:99). It is unlikely that the number of Tukudeka at Camas Prairie during the annual harvest was ever great and the impact of their presence in terms of physical space occupied, i.e., separate village cluster or small camps, is difficult to estimate; probably their impact was low.

Conclusions about the movements of the Tukudeka must be considered much more tentative than those drawn for the Boise-Weiser group. Probably there were two primary foci of occupation. First, there were winter/spring village occupations located along the Salmon River and its main tributaries (some of these villages may have remained occupied until near the end of the salmon run in July); second, there were small summer/fall multifamily camps scattered about in the mountains drained by the Salmon River.

To summarize then, there were two geographically interrelated yet dissimilar seasonal rounds (Fig. 3). Because of the paucity of information about specific movements, numbers of people involved, duration of occupation, interactions with other populations, etc., the "ethnographic pattern," as it refers to settlement patterns, remains somewhat hypothetical. Nonetheless, the seasonal migrations as described appears to have taken place and a model has been offered which can be used to predict the type of settlement that might be expected to appear in the archeological record of the areas outlined.

IV. THE SHEEPEATER BATTLEGROUND

Location and Setting

The Sheepeater Battleground Site lies 18 miles northwest of the town of Stanley, just off State Highway 21 (Fig. 2). The legal description of the site location is T. 12 N., R. 11 E., Sec. 10, NE1/4. The site is situated on a stream terrace above Marsh Creek (Fig. 4, 5). Just 100 m to the east of the site Cape Horn Creek flows into Marsh Creek; 6 miles beyond the confluence of the two streams, Marsh Creek empties into the Middle Fork of the Salmon. Sixty-five m west of the site the terrace is down cut by Camp Creek (Fig. 4). Camp Creek is at present, a small ephemeral stream whose channel widens and flattens out before it reaches Marsh Creek, creating marshy flats along the bank of the creek.

Marshes and wet meadows similar to those formed by Camp Creek are common near Sheepeater. To the south of the site is Vader Meadow, which extends six miles along Marsh Creek. To the west of the site, in Bear Valley (Fig. 2), are three similar but larger meadows: Ayres Meadow, Bruces' Meadow, and Poker Flats. Camas is generously distributed throughout all these meadows. Vegetation in the vicinity of the site is sparse, but off the terrace along the creek bottoms it is lush. The Forest around Sheepeater is lodgepole pine mixed with alpine fir (Fig. 6, 7).

Not far from the site, between Marsh Creek and State Highway 21, is a large boulder field. The boulder field is the only clear evidence of glaciation in this end of the basin. Assessing the antiquity of this deposit is not possible at this time; Williams' (1961) study of the glacial geology of Stanley Basin did not include the area north of Stanley Lake, ten miles south of Sheepeater.

Excavation Techniques

Prior to the excavation of Sheepeater, the boundaries of the site were unknown. The site had long been a favorite artifact collecting area for people visiting the area and as a result, the amount of surface material was exceedingly small. Yet, Bowers (1964) had mentioned that chipping detritus was abundant at this site and conversations with area residents suggested the site had a great deal of potential. After walking a number of transects across the site, it was decided that it would be more efficient to rely on test trenches rather than on surface concentrations of detritus and artifacts to dictate the location of the main excavations. Prior to the start of the excavations, a contour map of the site was made using a transit and stadia rod. This map was tied to both a local datum and to U.S.C.&G.S., bench mark No. 322. At the same time, a grid system of numbered 2 x 2 m squares was staked out across the site (Fig. 5).

The initial excavations consisted of several 2 x 0.5 m "slit trenches" dug along what appeared to be the north/south and east/west axes of the site. These trenches were extended in areas where the cultural material was most abundant. The "slit trenches" were found to be a rapid and effective means of assessing the stratigraphy and archeological potential of various portions of the site. Excavation was in arbitrary 15 cm levels, watchful of changes in the soil. The stratigraphy of the site was such, that arbitrary levels continued to be used throughout the entire excavation. The excavation was with shovels and picks and all material was screened through 1/4" mesh. As many artifacts as possible were recorded in situ. The materials caught in the screens were recorded by square and level. Each square was mapped before continuing excavations below a completed level, and a record of wall profiles from each pit was maintained. Soil samples were collected from the main trench at the site. The collection procedure employed was at variance with standard techniques in that a single column was not sampled. This was an oversight on the part of this author, but we believe that the samples do allow some valid conclusion to be drawn about the sediments at the site.

Stratigraphy

The stratigraphic cuts at Sheepeater revealed a profile suggesting the site was situated in an abandoned stream channel. A sediment analysis was undertaken in order to secure quantifiable evidence in support of this contention. The analysis was not undertaken to reconstruct past environments on a broad scale, although it sharpened and clarified the understanding of the sequence of events visible in the stratigraphic profiles (Fig. 8). On the basis of field observations and sediment analysis, the stratigraphic sequence at Sheepeater was found to be typical of channel infilling (Visher 1965, Harns and Fahnstock 1965). It is further suggested this abandoned stream channel was once the shallow stream bed of the now ephemeral Camp Creek, which presently flows into Marsh Creek 65 m west of the site (Fig. 4).

A number of phenomena cause channel infilling. At Sheepeater, whether it was simply a decreased water supply, damming of the channel below the site, or a diversion in the upper flow regime, it is difficult to say. The work of Lattman (1960) and Harns and Fahnstock (1965) demonstrates the necessity of large-scale excavations and/or borings to determine with any degree of certainty the causes of alluvial phenomena. All of the above possibilities are within reason, but an upper regime diversion, similar to that associated with braided streams, seems most probable. Morisawa's (1968:146-149) comments on braided streams seem to support this contention.

At Sheepeater, there are eight sedimentary units, of which the four uppermost are of most concern. Using the results of the mechanical analysis of these sediments, it is possible to retrace the end of a cycle of channel infilling, the cause of which is now known, but the effects of which are clear.

Results of sieve analysis of Layers 3 and 4 indicates there was a decrease in velocity of stream flow from Layer 4 to Layer 3. Miller (1970:24) indicates that a velocity of .6819 miles/hour (12 inches/sec.) is necessary to carry fine gravel. Layer 4 at Sheepeater is 49.4% fine and medium gravel and only 3.7% clay and silt, indicating the velocity of ancient Camp Creek was in excess of .68 miles/hour. In Layer 3, a shift in the sediments occurs. The percentage of fine and medium gravel is reduced to 11.17% and the silt and clay fraction increased to 33.58%. This suggests a reduction in the overall velocity of the stream. These figures are not intended to represent exactly the stream velocity, but only to show trends through time. The trend here is clearly one of gradual reduction of velocity, which portends the eventual infilling of the abandoned stream channel through periodic flooding or slope wash.

The analysis of sediments from Layer 2 at first appears to represent a return to conditions similar to that of Layer 4. The percentage of gravel and sand increases by 17% and the silt/clay fraction is correspondingly reduced. The change is more illusory than real. Larger grains were periodically deposited in the now very shallow channel, it was likely overgrown, possibly with marsh vegetation.

It may be possible, strictly on the basis of the sediments, to interpret this channel as a slough formed by Marsh Creek during an earlier period of lateral erosion. But if the stratigraphy and reconstructed direction of stream flow in the channel are considered, then the nature of the channel is apparent. The stream flow direction indicates that at one time, the channel ran closer to the area of the borrow pit east of the site and flowed into Marsh Creek well east of the present junction of Camp Creek and Marsh Creek. Since that time, the channel has been abandoned, resulting eventually in infilling by stream overflow.

Coleman and Gagliano (1965:146) characterize the marsh environment, and thus Camp Creek at this time appeared ". . . as low tracts of periodically inundated land supporting nonwoody grasses. . . ." A similar situation is visible across the floodplain of Marsh Creek today. They go on to describe the marsh environment, and the corresponding accumulation of sediment as follows (1965:146):

> The marsh environment's most noticeable feature is the abundance of plant life. This, coupled with its proximity to the water table, affords ideal conditions for the accumulation and preservation of plant material. Organic sedimentation is interrupted periodically by the introduction of fine clastics during flooding. Particularly in this environment, the lack in variety of structures stratigraphy is notable. Marsh deposits reveal the simple story of organic accumulation under relatively stagnant, chemically reducing conditions.

Thus, the trend of infilling continued in Layer 2. This layer marks the end of continuous flow in the channel, and the start of "organic accumulation and aboriginal occupation. With the amount of available

water reduced, the stream was probably dry much of the year, and ceased to function as an important tributary of Marsh Creek. Since that time, the channel has continued to dry out, probably once dense vegetation being reduced gradually. Now, after 70 years of grazing and more recently, 2-4D spraying, the vegetation on the surface of the channel does not look any different than that of the surrounding surfaces.

Soil Analysis

The soil samples were air dried and disaggregated before beginning analysis; each sample was then split and weighed. Samples were sieved through a series of six U.S. standard sieves, nos. 10, 18, 35, 60, 120, 230 and the collecting pan. Samples were manually agitated for ten minutes. At the end of the time, the contents of each sieve were removed and weighed, and the sediment sample fraction calculated (for a description of the technique see Royse 1970:7-19). Each sample was compared with the Munsell Color Chart, and visually examined with 10X lens. The procedure for describing the soil texture followed that outlined in Buckman and Brady (1969). Results are as follows:

Layer 2: Brown (7.5 YR5/4), light, sandy loam. Composition is 22.2% gravel, 63.1% sand, and 17.3% clay and silt. Gravel and sand were subangular to subrounded. Thickness varied from 10-20 cm to 80-90 cm; the greatest thickness was in the channel bottom.

Layer 3: Pale Yellow (5Y7/3) moist, clay loam. Composition is 11.17% gravel, 54.6% sand, and 33.58% clay and silt. Gravel and sand were angular to subrounded. Thickness varied from 0-10 cm to 20-30 cm. The sediment was deposited as horizontally stratified laminae. Distribution was limited to the channel bottom.

Layer 4: White (10YR8/2) light, sandy gravel. Composition is 49.9% gravel, 46.0% sand, 3.7% clay and silt. Gravel and sand were angular to subangular. Thickness did not vary significantly, 10-20 cm. Distribution was limited to the channel bottom.

Before concluding the discussion of the stratigraphy of the Sheepeater some mention of the mixing in Layer 2 must be made. Not in evidence in the profile (Fig. 8) of the main trench is the extent of the rodent burrows. The soil in this layer was mottled by rodent holes of various ages.

The effect of this mixing on the cultural stratigraphy is difficult to assess. In the absence of natural layers, the size of the arbitrary levels is important. Sheepeater was excavated in 15 cm levels; smaller levels would have obscured the disturbance altogether. There is no doubt that rodent holes presented a problem, yet the stratigraphy of Sheepeater is discernable. Deetz (1967:25-26) has commented on rodent burrows, but offers no solution to the mixing they cause.

V. THE RED FISH OVERHANG

Location and Setting

This site is situated 4.5 miles south of Stanley, Idaho, just off State Highway 93. Four hundred yards to the east of the site is the junction of Red Fish Lake Creek and the Salmon River. The site is located in the northern end of the Sawtooth National Recreation Area; the legal description of the site is T. 10 N., R. 13 E., sec. 26, NE1/4 (Fig. 2). Sargent (1973) has presented a description of the Red Fish Lake Overhang Site and its geology.

The site is situated below and in front of a massive outcrop of overturned granite boulders (Fig. 9) which protrudes from a Pinedale lateral moraine (Sargent 1973). The granite boulders which form the overhang are probably part of the bedrock, rather than a result of glacial deposition. The site faces a boulder strewn, glacial outwash plain (Fig. 9). These boulder fields also occur at the old Stanley Ranger Station site (Fig. 10). Just to the south of the site is Little Red Fish Lake, which stands at 6489 feet elevation.

There are three vegetation zones present at Red Fish Lake Overhang. These zones intergrade and overlap primarily in response to the availability of water. The moraines around the site are well drained and sagebrush (*Artemesia tridenta*) is abundant on them. On the flats across the outwash plain, Fescue wheatgrass is dominant. Encroaching on both zones is a Lodgepole pine Forest intermixed with Douglas-fir.

Excavation Techniques

In 1971, small preliminary test excavations were made at the Red Fish Site. At that time, two 1 x 2 m test pits were sunk at the western edge of the overhang across the drip line. On the basis of these excavations, a more intensive series of excavations was planned for the 1972 season by Professor Butler and Ms. Sargent.

The following year, excavations at the site were renewed. The 2 x 2 m grid system employed in the 1971 test excavations had been designed with additional excavations in mind and was reused in the 1972 excavations. The northwest corner of the overhang was established as a local datum and the site was mapped using 0.5 m contour intervals (Fig. 11). A base line was established and blocks in the grid system were numbered with respect to their distribution north and south of the base line.

The excavation of the site followed the natural layers excavated in 10 cm levels. Most of the material was excavated with trowels and dust pans. This technique permitted the recovery of 90% of the artifacts *in situ* (Sargent 1972 personal communication). Later in the field season, some material was excavated with picks and shovels. This material was screened for artifacts using standard 1/4" mesh. Whether the artifacts were recovered *in situ* or in the screens, the pertinent data were recorded on appropriately marked artifact and level bags.

Stratigraphy

Excavations at the Red Fish Overhang revealed a complex stratigraphic sequence composed of five layers. The complexity of the stratigraphy was such that its analysis comprised a separate set of problems which have been incorporated in the thesis of Kathryn Sargent (1973).

These five layers are grouped on the basis of the cultural material they encased. The upper three layers were deposited recently. They overlay a paleosol and contain cultural material dated later then 670 ± 130 radiocarbon years: A.D. 1280 (WSU 1410, 1410b). The lower two layers consist of a buried A horizon, and contains Haskett material dated at 9860 ± 400 (WSU 1395) radiocarbon years: 7910 B.C. In this study only the materials which post date 700 B.P. are being examined.

Soil Analysis

Professor M.A. Fosberg of the University of Idaho, Department of Plant and Soil Sciences recently analyzed a soil column made at the site by Sargent. That analysis is listed below. Professor Fosberg's comment on the boundary between the B3 and C1 horizons is notable. It was from immediately above this horizon boundary that the carbon sample dated at 670 ± 130 years B.P. was collected. Sargent (1973) has used these data to present some interesting hypotheses about past climatic conditions in the Stanley Basin.

Layer 1

A1 0-10 cm. Greyish brown (10YR 4.8/2.2); gravelly sand loam very dark greyish brown 10YR 3.2/2.2 moist; weak very fine granular structure, 43% angular granitic gravels; wavy boundary.

A3 10-20 cm. Greyish brown (10YR 4.6/2) gravelly sandy loam; very dark greyish brown (10YR 2.8/2) moist; very weak medium subangular blocky structure; 38% angular gravels; smooth boundary.

Layer 2

B1 20-41 cm. Dark greyish brown (10YR 4/2.2) very gravelly loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky breaking to strong granular structure; 57% fine and medium, angular granitic gravels; wavy boundary.

Comments: This is definitely a burried A1 horizon which represents a former surface. This is determined by the darker color and the horizon with the highest organic carbon.

B21 41-49 cm. Dark greyish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak medium prismatic breaking to weak fine subangular blocky and medium granular structure; 42% fine and medium granitic gravels, wavy boundary.

Comments: This horizon is also high in organic carbon and appears to have been part of the original A1 horizon represented by the horizon above.

Layer 3

B21 49-59 cm. Brown to dark brown (10YR 4/2.7) gravelly loam; dark brown (10YR 2.6/3.4) moist; weak medium prismatic breaking to weak fine subangular blocky and medium granular structure; 37% gravels, wavy boundary.

B3 59-71 cm. Brown (10YR 5/3) gravelly sandy loam; dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky and medium granular structure; 48% fine and medium granitic gravels; wavy boundary.

(This horizon has a definite stone line at surface of horizon and appears to be an old surface.)

Layer 4

C1 71-78 cm. Brown (10YR 5/3) gravelly sandy loam; dark yellowish brown (10YR 3/4) moist; 28% fine granitic gravels; paleosol B horizon; wavy boundary.

Comments: This horizon shows very little evidence of horizon development. However, there is weak structure characteristics of a B, therefore, may represent a buried B. Also, it has a slightly darker value than horizon below.

Layer 5

C2 78-87 cm. Light yellowish brown (10YR 6/4) gravelly sandy loam; structureless; 40% fine and medium granitic gravels.

VI. ARTIFACT ANALYSIS

In this thesis, I used the cultural material from the Stanley Basin to do several things: to investigate and demonstrate stylistic rather than ethnic or genetic similarities between these assemblages and those of the surrounding areas; to provide a chronological framework for the Sheepeater site; and to examine the settlement pattern outlined in "Ethnographic Setting." Thus, morphological types and historic-index types (which are the former tied down in time) are used in the analysis of the Sheepeater and the Red Fish Lake Overhang. The strategy employed in devising the types for each site consisted of laying out all the artifacts and sorting them on the basis of observed attribute clusters (Kreiger 1944; Rouse 1972). There was a conscious effort to allow as small a range of variability as possible within each type.

The types discussed below are morphological types which have been defined subjectively. In general, they are very similar to the types identified by other researchers elsewhere in the Great Basin. This is in part because similar methods yield similar results (cf. Jennings 1957:99; Swanson 1972:80).

Artifact Descriptions

In order to simplify the presentation of the type descriptions from Sheepeater and Red Fish Overhang, both sites are described together under one heading, although data pertaining to total numbers of specimens, material and measurements are kept separate for each site. When quantitative data are presented, the Idaho State University Museum accession number for the respective site is given with numerical information. Thus, data referring to Sheepeater are preceded by accession number 1640, and data referring to Red Fish Overhang are preceded by accession number 1663. The description of the type is applicable to both sites, and when necessary, mention is made of any pecularities.

The last item deserving mention is the vertical distribution of these artifacts. In the artifact descriptions, only the material from Sheepeater is listed by vertical provenience. All the material from Red Fish Overhang discussed in this paper is dated after approximately A.D. 1280 and is relatively homogeneous. The natural layers which included these materials were not culturally informative.

Projectile Points

Projectile points, together with the artifacts being shaped into projectile points, comprise nearly the entire collection of stone tools from both sites. There are several kinds of data which projectile points can provide; in this study mean neck width and stylistic attributes are the most useful.

Corliss (1972) describes several possible problems which can be examined using mean neck width. The importance of this measurement to this study is that it demonstrates a strong similarity of Sheepeater with other sites in the northern Great Basin in quantifiable terms (Corliss 1972, Table 1). A similar association based on mean neck width cannot be established for Red Fish Overhang because the sample of points from that site does not meet the statistical criteria. Nonetheless, Red Fish Overhang's affiliation with the Great Basin seems assured on typological grounds.

Side-Notched Points Type 1 (Fig. 12a-e)

Number of Specimens: 1640-5/1663-0

Description: All five specimens are basal fragments. Fractures on the points occurred at or just above the notches. Notches are deep and apparently narrow. Bases are concave and thinned with a series of short expanding flakes; bases have square spurs (for similar use of the term see Gruhn 1961a:66).

Material: 1640-5 obsidian

Measurements: Neck width

1640 nos.	195	0.92 cm
	337	fragment
	389	1.40 cm
	423	1.05 cm
	477	fragment

Range of other dimensions
Specimens are too fragmentary to measure

Distribution:

0-15 cm	1
15-30 cm	2
45-60 cm	1
75-90 cm	1

Comparisons: Swanson, Butler and Bonnichsen (1964 Fig. 36v)

Side-Notched Points Type 2 (Fig. 12f-j; 14a,b,e,h)

Number of specimens: 1640-5/1663-7

Description: The Sheepeater points have triangular blades with shallow notches and a base element ranging from straight to concave. All specimens are basally thinned. Cross-sections range from plano-convex to lenticular. Flaking is random; one specimen is flaked only unifacially. At

Red Fish Lake, three of the seven examples are fragmentary. Blade elements are triangular with slightly excurvate edges. Notches are narrow and shallow. Bases on five Blade elements are triangular with slightly excurvate edges. Notches are narrow and shallow. Bases on five specimens are notched; the other two are straight; basal notches are shallow and made with single semilunar flakes. Straight based specimens are basally thinned. Two points are resharpened; one of these was heat treated.

Material: 1640, 2 ignimbrite, 1 chert, 1 jasper, 1 obsidian/1663, 6 obsidian, 1 crypto-crystalline silicate

Measurements: Neck width

1640 nos.	131	0.70 cm	1663 nos.	38	0.56 cm
	176	0.72 cm		53	0.46 cm
	321	0.78 cm		107	0.42 cm
	390	0.89 cm		109	1.03 cm
	538	0.92 cm		132	0.90 cm
				153	0.80 cm
				172	0.79 cm

Range of other dimensions

1640 nos. Length 2.00 cm to 1.46 cm
Width 1.38 cm to 1.10 cm

1663 nos. Length 2.39 cm to 1.46
Width 1.57 cm to 1.05

Distribution: 0-15 cm 2
15-30 cm 3

Comparisons: 1640 Swanson, Powers and Bryan (1964 Fig. 2kk-11)
Butler (1971 Fig. 16o,p,r)
Green (1972 Fig. 11k)

1663 Swanson, Butler, and Bonnichsen (1964 Fig. 36p,r,u)
Heizer and Baumhoff (1961 Fig. 3a-h)
Butler (1971 Fig. 16d-f)

Comments: All these points fall within the range of the Desert Side-Notch Point Type. The Sheepeater specimens resemble the general subtype and the Red Fish Overhang examples resemble the Redding subtype (Baumhoff and Bryne 1959).

Side-Notched Point Type 3 (Fig. 12k-p)

Number of specimens: 1640-7/1663-0

Description: Based on the single complete specimen, this type consists of large points with triangular blades, straight edges and rounded, moderately deep notches. Flaking is less regular parallel or occasionally random. Bases are straight to slightly concave, with square spurs. Cross-section is biconvex to lenticular.

Material: 5 obsidian, 2 chert

Measurements: Neck width

1640 nos.	32	1.44 cm
	194	1.13 cm
	200	1.12 cm
	221	1.28 cm
	478	1.47 cm
	362	fragment

Range of other dimensions

Length 2.44 cm Only one specimen was measurable
Width 2.22 cm

Distribution: 45-60 cm 2
60-75 cm 4

Comparisons: Swanson, Butler and Bonnichsen (1964 Fig. 36a-d)
Butler (1970b Fig. 4j-1)
Gruhn (1964 Fig. 1s-t)

Comment: The seventh specimen no. 1640/172 was donated by a local sheepherder, who could give only the name of the next meadow below the site as the location of this find.

Side-Notched Type 4 (Fig. 14o,p)

Number of specimens: 1640-0/1663-2

Description: One of these points lacks a tip. These points have triangular excurvate blades and broad, moderately deep, notches set close to the base. One base is broken but both appear to be concave with squared off spurs. One specimen is heat-treated. Flaking is less regular parallel; cross-sections are lenticular.

Material: 1 jasper, 1 chert

Measurements: Neck width

1640 nos.	75	0.92 cm
	245	0.80 cm

Range of other dimensions

Length 2.45 cm Only one specimen was measurable
Width 1.45 cm

Range of other dimensions

Length 3.05 cm
Width 1.89 cm

Comparisons: Swanson and Bryan (1964 Fig. 5e)
Powers (1969 Fig. 18i-j)
Ranere (1971 Plate 7m-r)

Side-Notched Type 5 (Fig. 14c,d)

Number of Specimens: 1640-0/1663-3

Description: One specimen is nearly complete lacking only the tip; the other two examples are basal fragments. The blade on the nearly complete specimen is triangular with excurvate sides. Flaking is unifacial and random. Notches are shallow and slightly asymmetrical. Bases are straight with rounded spurs; basal thinning is accomplished with a series of short flakes. Cross-section is plano-convex on the nearly complete specimen, but the other examples were probably lenticular.

Material: 2 chert, 1 obsidian

Measurements: Neck Widths

1663 nos.	31	1.06 cm
	76	1.18 cm
	232	1.15 cm

Range of other dimensions

Specimens are too fragmentary to measure

Comparisons: Gruhn (1961a Plate 14k-m)
Swanson and Sneed (1966 Fig. 12q-r)

Miscellaneous Side-Notched Points: (Fig. 12q-r)

Number of specimens: 1640-2/1663-0

Description: The first specimen has a triangular excurvate blade and a straight base. There is no evidence of basal thinning. Notches are deep and broad. Spurs are pointed. Flaking is parallel, irregular, and directed toward the base. Cross-section is lenticular.

Material: 1 quartz

Measurements: Neck Width

1640/328 0.95 cm

Range of other dimensions

Length 3.05 cm
Width 1.89 cm

Distribution: 15-30 cm 1

Comparisons: Swanson, Butler, and Bonnichsen (1964 Fig. 36d)
Cressman (1942 Fig. 98c, row 2, fifth from left)

Description: The second specimen is a basal fragment. Notches are placed close to the base and are narrow and shallow. The base is slightly convex. Basal thinning is minimal. Flaking is parallel irregular. Cross-section is lenticular.

Material: 1 obsidian

Measurements: Neck Width

1640 no. 470 1.37 cm

Distribution: 30-45 cm 1

Comparisons: Jennings (1957 Fig. 102a on right)

<u>Corner-Notched Point Type 1</u> (Fig. 12s-v, 14i)

Number of specimens: 1640-5/1663-1

Description: Two of the specimens from Sheepeater are complete, the rest are broken off at or slightly above the apex of the notches. Blades are excurvate triangular, with one specimen being serrated. Notches are very deep and broad, resulting in a contracted neck and an expanding stem. Bases are straight or slightly concave. Bases are thinned, either with a series of short flakes or a single channel flake. Flaking is less regular parallel. Cross-section is plano-convex to lenticular.

Measurements: Neck widths

1640 nos.	124	0.98 cm	1663 no.	49	1.15cm
	183	1.17 cm			
	286	1.06 cm			
	326	1.20 cm			
	369	0.96 cm			

Range of other dimensions

1640 nos.	Length	3.54 cm to 2.97 cm
	Width	2.31 cm to 1.13 cm

1663 no. Specimen is too fragmentary to measure

Distribution:

15-30 cm	3
30-45 cm	1
75-90 cm	1

Comparisons: Swanson, Powers, and Bryan (1964 Fig. 3v,w)
Butler (1970b Fig. 4m,n)
Swanson and Sneed (1966 Fig. 18n)

Corner-Notched Points Type 2 (Fig. 12w-z, 13a-e)

Number of specimens: 1640-12/1663-3

Description: These points have long isosceles triangular blade elements with straight edges. Notches are of moderate depth and width. Bases are straight to slightly concave and thinned with a series of ribbon-like flakes. Flaking is less regular parallel approaching double diagonal. Cross sections are lenticular.

Material: 1640-12 obsidian/1663-3 obsidian

Measurements: Neck widths

1640 nos.	10	1.24 cm	308	1.36 cm
	76	1.19 cm	324	1.10 cm
	213	1.30 cm	393	1.29 cm
	230	1.32 cm	422	fragment
	231	1.31 cm	438	0.96 cm
	311	1.45 cm	550	fragment

1663 nos.	235	fragment
	254	1.43 cm
	904	1.21 cm

Range of other dimensions

1640 nos.	Length	4.23 cm to 3.59 cm
	Width	2.27 cm to fragments
1663 nos.	All specimens are too fragmentary to measure.	

Distribution:

0-15 cm	6
15-30 cm	4
30-45 cm	1
45-60 cm	1

Comparisons: Gruhn (1961a Plate 36k)
Swanson, Powers, and Bryan (1964 Fig. 20e)
Swanson, Butler and Bonnichsen (1964 Fig. 36e-i)
Swanson and Sneed (1966 Fig. 18m-n)
Butler 1970b (Fig. 5b)
Green (1972 Fig. 11,1-n)

<u>Corner-Notched Points Type 3</u> (Fig. 14j)

Number of specimens: 1640-0/1663-2

Description: One of these specimens is a basal fragment; the other is a notched flake on which the blade element is triangular with one incurvate edge and one excurvate edge. Notches are very shallow and broad. The base on the complete specimen is straight, the other specimen has a basally thinned convex base. Cross-section on the complete specimen is a long 'S' twist. Flaking is limited to edge retouch.

Material: 1 obsidian, 1 jasper

Measurements: Neck width

1663 nos.	162	1.33 cm
	233	1.43 cm

Range of other dimensions

Length	2.92 cm	Only one specimen is measurable
Width	2.05 cm	

Comparison: Ranere (1971 Plate 6rr)

<u>Corner-Notched Point Type 4</u> (Fig. 13f-k)

Number of specimens: 1640-6/1663-0

Description: These points have squat triangular blades with straight to slightly excurvate edges. Notches are broad, sloping toward and removing some of the end of the point base. Bases are convex and thinned with either several short ribbon flakes or one long channel flake terminating above the apex of the notches. Three of the specimens are base fragments; on the complete specimens flaking is random to less regular parallel. Cross-sections are lenticular.

Material: 4 obsidian, 2 ignimbrite

Measurements: Neck width

1640 nos.	77	1.15 cm
	233	1.15 cm
	241	fragment
	391	1.18 cm
	392	1.25 cm
	522	1.02 cm

Range of other dimensions

Length 3.26 cm to 2.64 cm
Width 2.33 cm to 2.15 cm

Distribution:

0-15 cm	2
15-30 cm	2
45-60 cm	1
75-100 cm	1

Comparisons: Gruhn (1961a Plate 14t)
Green (1972 Fig. 11o)

<u>Corner-Notched Type 5</u> (Fig. 13,1)

Number of specimens: 1640-2/1663-0

Description: These specimens have short, slightly tapering triangular blades with straight edges. Notches are very broad and moderately deep. One base is straight; the other is slightly concave. The concavity of the second specimen is largely due to numerous unsuccessful attempts to thin the base. Flaking is less regular parallel, and cross-section is lenticular to biconvex.

Material: 2 ignimbrite

Measurements: Neck width

1640 nos.	203	0.85 cm
	445	1.07 cm

Range of other dimensions

Length	3.08 cm	Only one specimen is measurable
Width	1.90 cm	

Distribution: 15-30 cm 1
60-75 cm 1

Comparisons: Jennings (1957 Fig. 99a on right)
Swanson, Butler, and Bonnichsen (1964 Fig. 37b-e)
Cowan and Clewlow (1968 Plate 1n)
Aikens (1970 Fig. 11p-t)
Butler (1970a Fig. 7s-x)

<u>Elko-eared Points</u> (Fig. 13m-p)

Number of Specimens: 1640-4/1663-0

Description: Three of these specimens are resharpened. The fourth specimen has a long triangular blade with slightly serrated edges. Notches are parabolic and deep, directed in from the corner. These points have sloping shoulders and expanding stems. Bases are deeply concave or notched. Flaking is double diagonal; cross-sections are plano-convex or biconvex.

Material: 3 obsidian, 1 chert

Measurements: Neck width

1640 nos.	83	0.93 cm
	270	1.05 cm
	345	1.25 cm
	411	1.30 cm

Range of other dimensions

Length 3.97 cm to 2.31 cm
Width 1.88 cm to 1.45 cm

Distribution: 0-15 cm 2
15-30 cm 1
45-60 cm 1

Comparisons: Heizer and Baumhoff (1961, Fig. 4)
Aikens (1970 Fig. 20n)
Butler (1970a Fig. 9a-t)
Green (1972 Fig. 11p-t)

<u>Basal-Notched Points</u> (Fig. 14k)

Number of Specimens: 1640-0/1663-6

Description: These specimens are triangular in outline with wide, deep notches directed upward from the base. Blade elements are narrow and long; edges are straight on five specimens and incurvate on the sixth. One specimen has been heat treated. Cross-sections are lenticular, flaking is less regular parallel.

Material: 3 obsidian, 1 quartz, 1 jasper, 1 basalt

Measurements: Neck width

1663 nos.	135	0.58 cm
	177	0.60 cm
	193	0.51 cm
	199	0.52 cm
	200	0.58 cm
	257	0.72 cm

Range of other dimensions

Length	2.97 cm to 2.10 cm
Width	2.29 cm to 1.28 cm

Comparisons: Gruhn (1960 Fig. 4g)
Gruhn (1961a Plate 14 v-z)
Gruhn (1961b Fig. 2j)
Swanson, Butler, and Bonnichsen (1964 Fig. 36,1-o)
Swanson and Sneed (1966 Fig. 20h)
Swanson and Sneed (1971 Fig. 14s-t)

<u>Triangular Points</u> (Fig. 13q-v; 14,1-n)

Number of specimens: 1640-6/1663-4

Description: These points are generally small. They are triangular in outline with variable bases, including 3 concave, 3 straight, 3 convex and 1 notched. Bases of all but the notched specimen are thinned. All examples are made on flakes and are randomly pressure flaked. Cross-sections are plano-convex or lenticular.

Material: 1640-5 obsidian, 1 chert/1663-2 obsidian, 1 quartz and 1 basalt

Measurements: Range of dimensions

1640 nos.	Length	1.77 cm to fragments
	Width	1.39 cm to 1.18 cm

1663 nos. Length 3.33 cm to fragments
Width 2.36 cm to 1.47 cm

Distribution:

0-15 cm	2
15-30 cm	3
30-45 cm	1

Comparisons: Jennings (1957 Fig. 110)
Gruhn (1964 Fig. 2c)
Swanson, Butler, and Bonnichsen (1964 Fig. 35e-f)
Swanson and Sneed (1966 Fig. 19b-d)
Warren, Wilkenson and Pavesic (1971 Fig. 5x)

Squat-Stemmed (Fig. 13bb, 14q,r)

Number of specimens: 1640-1/1663-2

Description: The specimens from Red Fish Lake are fragmentary; one of them was resharpened. The blade of the complete specimen (from Sheepeater) has a squat, excurvate triangular blade. Shoulders are not inset far; the stem slopes slightly outwards to the base. Bases are thinned with a series of ribbon-like flakes. Flaking is less regular parallel on the blade; cross-section is lenticular. The resharpened specimen has an 'S' twist in its cross-section due to alternately reworked margins.

Material: 1640-1 obsidian/1663-2 crypto-crystalline

Measurements: Neck widths

1640 no.	332	1.52 cm
1663 nos.	153	1.48 cm
	249	1.55 cm

Range of other dimensions

1640	Length	3.80 cm
	Width	2.64 cm
1663	Length	2.59 cm (resharpened point)
	Width	2.03 cm

Distribution: 45-60 cm 1

Comparisons: Gruhn (1961a Plate 14q)
Powers (1969 Fig. 18a-b)

Small-Stemmed (Fig. 13w-y)

Number of specimens: 1640-2/1663-0

Description: Both points are fragmentary. One is broken at the tip; the other is fractured laterally from the tip to the shoulder. Both points are thick with biconvex cross-sections. The blades are not significantly wider than the stem. One base is slightly notched or thinned with a short semi-lunar flake. The other base is convex; it is thinned in a similar manner. Flaking on one specimen is comprised of short ribbon flakes which is more fragmentary, has numerous hinge fractures, the result of poorly directed pressure flakes.

Material: 1 quartz, 1 obsidian

Measurements: Neck width

1640 nos.	344	1.10 cm
	473	1.15 cm

Range of other dimensions
Specimens are too fragmentary to measure

Distribution:

30-45 cm	1
45-60 cm	1

Comparisons: Aikens (1970 Fig. 21g)
Swanson, Powers, and Bryan (1964 Fig. 1e)

Stem Indented (Fig. 13z,aa)

Number of specimens: 1640-5/1663-0

Description: All examples are basal fragments; two of the five are edge-ground. Basal notches are shallow, giving the bases the appearance of being eared. Two specimens are basally thinned. On one point, the thinning is accomplished with a single channel flake.

Material: 3 ignimbrite, 1 obsidian, 1 jasper

Measurements: Neck widths

1640 nos.	146	1.35 cm
	224	fragmentary
	309	1.49 cm
	417	1.69 cm
	553	fragmentary

Range of other dimensions
Specimens are too fragmentary to measure

Distribution: 0-15 cm 2
30-45 cm 1
45-60 cm 2

Comparisons: Swanson, Butler, and Bonnichsen (1964 Fig. 7f)
Delisio (1970 Fig. 12f-g)
Green (1972 Fig. 12h-i)
Jennings (1957 Fig. 75)

Narrow Base Lanceolate Type 1 (Fig. 15a-g)

Number of specimens: 1640-10/1663-2

Description: All examples are basal fragments. The base is straight and the margins taper downward to it. Four specimens at Sheepeater are edge-ground; all specimens are basally thinned with long ribbon-like flakes. Many thinning flakes terminate above the fracture. One example from Sheepeater is thinned with a single narrow channel flake. Cross-section is thick lenticular.

Material: 1640-9 obsidian, 1 basalt/1663-2 obsidian

Measurements: All specimens are too fragmentary to measure

Distribution: 15-30 cm 3
30-45 cm 3
45-60 cm 3
60-75 cm 1

Comparisons: Powers (1969 Fig. 18r-t)
Green (1972 Fig. 13p-s)

Narrow Base Lanceolate Type 2 (Fig. 15h-j)

Number of specimens: 1640-2/1663-0

Description: All three specimens are basal fragments. Margins are expanding upward from the base. Bases are rounded. Edges are ground and crushed. The edge preparation may be preliminary to a final series of thinning flakes. One example portrays this sequence. Flaking is parallel collateral on two of the points and random on the third. Cross-sections are lenticular to biconvex.

Material: 3 ignimbrite

Measurements: Specimens are too fragmentary to measure.

Distribution: 45-60 cm 3

Comparisons: No comparable forms were found in the regional literature.

Square-base Lanceolate (Fig. 15k-m)

Number of specimens: 1640-6/1663-0

Description: Five examples are basal fragments; one is nearly complete, missing only the tip. Bases are straight to slightly concave. Basal thinning is minimal. Two examples are edge ground, and one of these is basally ground. The specimen which exhibits edge and basal grinding has had the aretes on both faces ground. The basalt forms are slightly eared. Flaking is less regular parallel; cross-section is lenticular.

Material: 4 basalt, 2 obsidian

Measurements: Specimens are too fragmentary to measure

Distribution:

0-15	cm	1
15-30	cm	1
45-60	cm	1
60-75	cm	3
75-100	cm	1

Comparisons: Swanson and Sneed (1966 Fig. 20k)
Gruhn (1961a Plate 13d-f)
Green (1972 Fig. 13x)
Swanson, Powers and Bryan (1964 Fig. 3vv)
Butler (1968 Fig. 11c)

Comments: The specimens in levels 0-15 and 15-30 are very fragmentary and may not actually belong in this type.

Large Lanceolate (Fig. 15o)

Number of specimens: 1640-1/1663-0

Description: The only example of this type is a basal fragment. Margins are expanding above the base. The base is slightly concave and has been thinned on both faces with a single short broad flake. Flaking is random percussion, with some pressure retouch on the edges to regularize the outline. Cross section is lenticular.

Material: 1 chert

Measurements: Specimen is too fragmentary to measure

Distribution: 15-30 cm 1

Comparisons: No comparable types were found in the regional literature

Bi-pointed Point (Fig. 15p)

Number of specimens: 1640-1/1663-0

Description: This point has been resharpened in the haft producing an asymmetrical outline. Flaking is irregular diagonal. Cross-section is biconvex.

Material: 1 obsidian

Measurements: Length 3.58 cm
Width 1.59 cm

Distribution: 45-60 cm 1

Comparisons: Butler (1970a Fig. 3c)
Aikens (1970 Fig. 22g)

Comment: Comparable types are not described as resharpened

Concave Base Lanceolate Type I (15q)

Number of specimens: 1640-0/1663-1

Description: This is a straight-sided point with an asymmetrically resharpened tip. The base is slightly concave. The point is edge-ground and basally ground. Flaking is parallel collateral, with feathering at the midline. Cross-section is thick bi-convex.

Material: 1 obsidian

Measurements: Length 3.75 cm
Width 1.50 cm

Comparisons: No comparable forms were found in the regional literature

Concave Base Lanceolate Type 2 (Fig. 15r)

Number of specimens: 1640-1/1663-0

Description: This specimen has been resharpened asymmetrically. The blade is an irregular triangle. The base is slightly concave and thinned with short ribbon-like flakes. The edges and basal concavity are ground. Flaking is less regular parallel near the base but approaches double diagonal on the blade. Cross-section is thin lenticular.

Material: 1 obsidian

Measurements: Length 2.83 cm
Width 1.63 cm

Distribution: 45-60 cm 1

Comparisons: Gruhn (1961a Plate 13 g-h)
Swanson and Bryan (1964 Fig. 5u-v)
Gruhn (1964 Fig. 1c-i) Green (1972 Fig. 13a-g)

<u>Concave Base Lanceolate Type 3</u> (Fig. 15s)

Number of specimens: 1640-2/1663-0

Description: Both specimens are somewhat fragmentary. One is diagonally fractured across the blade, the other lacks part of the tip. The former was being thinned when it was broken. Blade form is not distinguishable and flaking patterns are less regular parallel near the base but obscured above it. There is a difference in luster on parts of the specimen, suggesting it was heat treated near the final stage of manufacture. The basal concavity is shallow and made with a few short semi-lunar flakes. Cross-section is lenticular. The second specimen is leaf-shaped in outline. The point was broken and discarded before it was completed. The tip is unflaked and broken off. Flaking on the blade is parallel diagonal. Basal notching is accomplished in the same manner as described above. The concavity is slightly deeper in this specimen and it gives the point a slightly eared appearance. Edges and the basal concavity are ground. Cross-section is lenticular.

Material: 1 obsidian, 1 chert

Distribution: 30-45 cm 1
45-60 cm 1

Measurements: Specimens are too fragmentary to measure

Comparisons: Heizer and Baumhoff (1961 Fig. 5a)
Clewlow (1968 Fig. i-e)
Green (1972 Fig. h-j)

<u>Miscellaneous Projectile Points</u> (Fig. 15t)

Number of specimens: 1640-1/1663-0

Description: On the manufacturing continuum, <u>i.e.</u> roughout-blank-preform-finished (Muto 1971), this flake would lie somewhere between a preform and a finished product. This example is a basal fragment which has been notched. One notch has been directed in from the corner, the other in from the base. The notches are 'V' shaped and deep. Outline is excurvate triangular; cross-section is plano-convex.

Material: 1 obsidian

Measurements: Neck width 1640/368 1.12 cm

Range of other dimensions
Too fragmentary to measure

Distribution: 30-45 cm 1

Comparisons: No comparable forms were found in the regional literature.

<u>Roughouts, Blanks, and Preforms</u>

There are various names applied to the unfinished tools archeologists recover. The terms blanks and preforms are the most common appelations. Muto (1971) and Crabtree (1972) define blanks and preforms similarly. A blank is defined by Crabtree (1972:42) as:

> A usable piece of lithic material of adequate size and form for making a lithic artifact - such as unmodified flakes of a size larger than the proposed artifact, bearing little or no waste materials, and suitable for assorted lithic artifact styles. The shape or form of the final product is not disclosed in the blank. A series of the objects in the early stages in the manufacturing process before the preform is reached.

Crabtree (1972:85) defines preforms as:

> An unfinished, unused form of the proposed artifact. It is larger than, and without the refinement of, the completed tool. It is thick, with deep bulbar scars, has irregular edges, and no means of hafting. Generally made by direct percussion. Not to be confused with a "blank."

Blanks preceed preforms in the production sequence. Green (1972:66-67) adds an additional stage to the manufacturing sequence-the roughout. Roughouts preceed blanks in the manufacturing sequence and are defined by Green (1972:66-67) as ". . . those natural cobbles or large flakes which exhibit initial decoration by the percussion method and retain much of their original surface, <u>i.e.</u>, cortex. Roughouts are thick in cross-section with sinuous edges and outline determined more by the shape of the cobble or flake . . . ."

Comment: One fragmentary specimen from Sheepeater had a burin blow on it, but no wear was detected using a 10X lens.

Cores and Core Remnants (Fig. 17d; 18a-c)

Number of Specimens: Cores 1640-0/1663-2 Core Remnants 1640-3/1663-2

Description: Cores. Both specimens are multidirectional cores. Platform preparation is slight. Most of the detached flakes appear to be hinged off. Cortex is present on both pieces. Core Remnants. All pieces could be easily misidentified as angular rubble; there are whole flake scars on each piece which indicate they are cores but are so small that it would be difficult to remove a useful flake, and so the label remnant. These are essentially exhausted cores. One piece is approximately pyramidal, the others are multidirectional.

Material: Cores 1663-2 crypto-crystalline
Core Remnants 1640-1 basalt, 1 chert, 1 obsidian
1663-1 basalt, 1 jasper

Measurements: These artifacts are too irregular for measurements to be repeatable or meaningful

Distribution: Core Remants 0-15 cm 1
15-30 cm 2

Midvale Elongates (Fig. 18d-i)

Number of Specimens: 1640-6/1663-0

Description: All basalt examples of this type are fragmentary. Morphologically they correspond closely to Warren, Wilkinson and Pavesic's (1971:47, 62 Fig.k) type description. These pieces are too fragmentary to assign one of the six sub-types proposed by the above authors. There is a single complete example which is made of chert; this piece is much smaller than any of the basalt fragments. All examples are plano-convex in cross-section, and are unifacially flaked around the margins leaving steep sides and sharp edges.

Material: 1 basalt, 1 chert

Distribution: 0-15 cm 2
30-45 cm 1
45-60 cm 3

Knives (Fig. 17e)

Number of Specimens: 1663-7/1640-0

Description: Includes 6 fragments: 2 bases, 2 midsections and 2 tips. The seventh specimen is triangular in outline with a rounded base. Much of the original flake scar is visible on the ventral surface of the piece. The specimen was weathered throughout prior to being flaked. Flaking is percussion, the edges are regularized with both percussion and pressure. Cross-section is thick lenticular, approaching biconvex.

Material: 1 chert (complete specimen), 4 chert, 1 basalt, 1 cryto-crystalline (fragments)

Measurements: 11.2 cm X 4.9 cm (complete specimen)

Knives (Fig. 19)

Number of Specimens: 1640-4

Description: 1640/446. Margins are parallel, base is rounded. Cross-section is biconvex. Flaking is random and short, generally not reaching the midline. Edges are crushed and stepped-off. Basal thinning is minimal. Wear is limited to one edge. Material: Chert. Measurements: 11.5 cm x 2.99 cm x 0.95 cm (Fig. 19d)

1640/416. Margins are parallel tapering with the base missing. Cross-section is lenticular. Flaking is percussion with pressure retouch along the edges. Edges are regular and occasionally crushed. Wear is moderate. Material: Chalcedony. Measurements: 10.4 cm x 3.2 cm x 0.5 cm (Fig. 19c).

1640/35. Margins are parallel tapering with base and tip portions missing. Cross-section is lenticular to plano-convex. Flaking is percussion with short ribbon-like pressure retouch. Edges are sharp and regular with little evidence of wear. Material: Basalt. Measurements: 11.6 cm x 4.5 cm x 6 cm (Fig. 19b).

1640/306. In outline, this piece resembles a large side-notched projectile point with a slightly concave base. Flaking is parallel irregular. Edges are slightly crushed and alternately beveled, giving the blade a slight 'S' curve. The base is thinned and slightly ground. Wear along the edges is moderate. Material: Obsidian. Measurements: 7.9 cm x 3.2 cm x 0.7 cm (Fig. 19a).

Distribution: 15-30 cm 1 (306)
30-45 cm 1 (556)
45-60 cm 1 (416)
75-90 cm 1 (35)

Knife fragments (not illustrated)

Number of Specimens: 1640-6/1663-0

Description: Fragments include two tips, a base, a midsection and two lateral fragments. The fragments are percussion flaked bifaces with pressure or well controlled percussion marginal retouch. One basalt tip fragment exhibits heavy unilateral wear. The edge of this piece is smoothed (as opposed to polished or ground) and rounded. The arrets of the retouch flakes are also smoothed and rounded in a similar fashion. Microsopic examination with a 10X hand lens did not reveal an "even pattern."

Material: 5 basalt, 1 chert

Distribution: 0-15 cm 1
30-45 cm 3
45-60 cm 1
75-90 cm 1

Comment: The basalt fragments are quite similar to the complete knife (1640-35), and to knives depicted in the Midvale Complex Report (Warren, Wilkinson and Pavesic 1971).

Retouched Flakes (Fig. 21a-c,1-n)

Number of Specimens: 1663-9/1640-0

Description: These specimens are distinguished by retouched margins. Retouching is accomplished by intentional flaking or through use. There are three complete specimens and six fragments; the fragments include 2 proximal ends 3 distal ends, and 1 lateral fragment. Flaking pattern is variable. Four specimens, two of which are blade-like, are unilaterally-bifacially retouched. Other flaking patterns include bilaterally-bifacially (1) unilaterally-unifacially (3). The single lateral fragment is bifacially retouched.

Material: 4 chert, 2 jasper, 2 ignimbrite, 1 chalcedony

Measurements: Blade-like flakes

Length	7.36 cm	5.34 cm
Width	2.38 cm	3.40 cm

Third complete specimen

Length	6.56 cm
Width	5.35 cm

Scrapers (Fig. 18,l-o)

Number of Specimens: 1640-7

Description: These tools are flakes which have been steeply retouched either intentionally or through use. Retouching is generally confined to the distal end and margins of these flakes, and less frequently (3 examples) along the lateral margins of the flake. The retouching along the lateral edge does not exhibit wear, and is not functionally significant. Cross-sections are plano-convex. Wear varies from light edge crushing on the obsidian specimens to heavily polished edges on the quartzite examples.

Material: 3 chert, 2 obsidian, 2 quartzite

Measurements:

Length	3.49 cm	to 2.74 cm
Width	2.70 cm	to 1.87 cm

Distribution:

0.15 cm	2
15-30 cm	3
30-45 cm	2

Scrapers (Fig. 21h-i)

Number of Specimens: 1633-12

Description: These tools are flakes which have been steeply retouched. Retouching is accomplished either intentionally or through use. Intentional retouching is controlled and regular. Use retouch tends to be characterized by edge crushing and step fractures (also see Semenov 1964). The flake morphology is highly variable. Eight specimens are retouched primarily along the distal end. Three of these end scrapers are made on blade-like flakes, two are made on discoidal flakes and three are fragmentary. Cross-sections are planoconvex.

Material: 5 chert, 2 quartzite, 1 ignimbrite

Measurements: Length 4.50 cm to 2.20 cm
Width 3.98 cm to 1.60 cm

Description: Four other scrapers are retouched primarily along the lateral margins. One specimen is made on a blade-like flake; two other pieces are too fragmentary to describe. A fourth specimen has been notched, presumably for hafting. The blade of this specimen is triangular in outline. Retouching extends along both sides of the blade. Wear is quite heavy on this piece. Cross-section is plano-convex.

Material: 3 obsidian, 1 chert

Measurements: Length 4.70 cm to 2.27 cm
Width 2.88 cm to 1.56 cm

Utilized Hinge-Fractured Flakes (Fig. 20b-c)

Number of Specimens: 1640-2

Description: These two flakes were heavily utilized along the distal end of the flake. Wear consists of crushing and polishing on the obsidian specimen and some crushing and a few step fractures on the quartzite piece.

Material: 1 obsidian, 1 quartzite

Distribution: 0-15 cm 1
15-30 cm 1

Spokeshave (Fig. 20a)

Number of Specimens: 1640-1/1663-0

Description: This artifact is a fragment of a large flake which was laterally broken. The piece is plano-convex in cross-section; one margin has been flaked to produce a concave working edge.

Material: 1 obsidian

Distribution: 45-60 cm 1

Gravers (Fig. 20d, 21j)

Number of Specimens: 1640-2/1663-1

Description: The specimens from Sheepeater are thin fragmentary flakes which exhibit little retouching except near the working part of the tool. Each flake has been chipped to form a nipple on one margin. These nipples are small and have been heavily used. The flakes have an irregular outline and cross-section.

Material: 1 obsidian, 1 chert

Distribution: 0-15 cm 1
15-30 cm 1

Description: The single graver from Red Fish Overhang is made on a thick flake which has been unifacially chipped along the distal end and margins to form a triangular shaped tool. The point of the triangle is the working end of the tool; there is some wear present on the tip. Margins may have served as a scarping tool as they are slightly crushed. In cross-section, the flake is plano-convex to convex-concave.

Material: 1 chert

Measurements: Length 4.59 cm
Width 2.80 cm

Perforators (Fig. 20e, 21k)

Number of Specimens: 1640-2/1663-1

Description: One specimen from Sheepeater is excurvate triangular in outline. This piece has been heat treated and pressure flaked on both surfaces. Cross-section is lenticular. The tip has been moderately worn. The second example has a needle-like blade which has been pressure flaked all the way around. Blade cross-section is diamond. The blade expands near the bottom to form the base. The base is a square bottom 'V' in outline, the wider end of which is connected with the blade. The tip exhibits moderate wear.

Material: 1 jasper, 1 chert

Measurements: Length 5.84 cm 3.19 cm (needle-like blade specimen)
Width 2.06 cm 1.75 cm

Distribution: 30-45 cm 1
45-60 cm 1

Description: The perforator recovered at Red Fish Lake is a long thin bipointed piece. Both ends are flaked to form serviceable tools. Along one margin, a third working point has been flaked. All three tool areas show signs of wear. Cross-section is plano-convex.

Material: 1 chert

Measurements: Length 4.56 cm
Width 1.20 cm

Awl Sharpeners (Fig. 20f, g)

Number of Specimens: 1640-2/1663-0

Description: One specimen is a rectangular block with a single groove running the length of one side. The second example is rectangular in outline, but concave-convex viewed from the end. There is a single groove which runs the length of the concave surface.

Material: 2 coarse sandstone

Measurements:	Length	7.00 cm	3.58 cm	Thickness	3.02 cm	0.87 cm
	Width	2.64 cm	2.20 cm			

Distribution: 30-45 cm 1
60-75 cm 1

Cobble Tools (Fig. 22a-c)

Number of Specimens: 1640-0/1663-3

Description: 1 Pestle, 2 Edge-battered Cobbles

Pestle. This cobble has been flattened on one end, which forms the working surface. The edges extending above the working surface are mildly ground as if the pestle had been used in a container not much wider than itself. Cross-section is oval.

Material: 1 rhyolite

Measurements: 13.5 cm x 4.87 cm x 3.17 cm

Edge-battered Cobbles. Both specimens are long river cobbles, with one end of each specimen broken off or somewhat fragmentary. The first specimen is battered unilaterally and partly across the intact end; this cobble is oval in cross-section. The second piece is

Fauna

Osteological remains were meager. Faunal remains at Red Fish Lake Overhang consisted of a single unidentifiable mussel shell. At Sheepeater there were several fragments of long bones recovered, only one of which was identifiable. The bone is a distal end of a right tibia of a fully mature antelope (*Antilocapra americana*). The bone is transversely broken across the shaft 2 cm above the epiphysis. Butchering marks or cuts are visible on the surface of the shaft (Fig. 20n).

VII. CULTURAL STRATIGRAPHY

Sheepeater Battleground

The analysis of the cultural stratigraphy was designed to accomplish three tasks. The first was to establish a tentative chronology for the site. By cross-dating the various artifact types described in the foregoing section with the same types from dated strata in other sites in the northern Great Basin, I hoped to be able to erect a workable chronology. The chronology proposed for Sheepeater, since it lacks support from radiocarbon dates or other absolute dating techniques, is considered tentative. Yet, the results of obsidian hydration analysis (Appendix I) partially support the postulated chronology.

Secondly, the site needed to be examined as a functional unit, not just as a series of projectile point types. Thus, Rouse's (1972) concept of an activity assemblage was employed to describe site usage.

Thirdly, it was important to draw some tentative conclusions about the cultural relationship of this site to others in the immediate area. Rather than relying exclusively on diagnostic artifact types, the frequency of various raw materials identified in the debitage have been emphasized as a reflection of the availability of these raw materials during aboriginal times.

Activity Assemblages

The archeological remains from Sheepeater were modest in number when compared with the inventory of artifactual and faunal remains from the rockshelters and caves of Eastern Idaho (cf. Swanson, Butler, and Bonnichsen 1964; Swanson and Sneed 1966; Butler 1968; Delisio 1970; Swanson and Sneed 1971; Miller 1972). Yet the cultural materials from this site has a certain internal consistency which constitutes what might be called an "activity assemblage" (Rouse 1972). Rouse (1972:44) has defined an activity assemblage as ". . . a number of specimens that occur together within a component as a result of one or more linked activities carried out by the people who occupied the component." He adds that "components of nonresidential sites may yield remnants of only a single activity, as when a people visited a place for the purposes of butchering game." At the same time, we should note that sites generally are multifunctional; "hunting" or "gathering" or "stone chipping" are not the only activities carried out at sites but they often are emphasized to the exclusion of other activities because they are more obvious in the archeological record. The number of activity assemblages a site will manifest is related to the complexity of the culture of the site's occupants and the duration of their occupation. Binford (1962) has argued that it is possible to reconstruct extinct cultures totally; if we are ever to do this, we need to seek the more subtle relationships within our sites. At present, this remains more a goal than a reality although significant progress is being made (cf. Hill 1970).

We have used the concept of an activity assemblage because it connotes functional specificity within horizontal and vertical distributions. An activity assemblage may thus be perceived as a set of tools which will exhibit both a horizontal pattern characteristic of that activity and an evolutionary pattern. Through time, the constituent elements of an activity assemblage may change and the distribution of these elements across a site will change. Yet at any point in time, both the distributional pattern and the composition of an activity assemblage should be diagnostic of a cultural group.

Before discussing the activity assemblages at Sheepeater, a constant problem with the data must be mentioned. Sheepeater was excavated in arbitrary 15 cm levels and in 2 x 2 m squares. Obviously, people do not live in 2 x 2 m squares nor do they necessarily allow 15 cm of deposit to accumulate before reoccupying a site. Because of this bias in the collection techniques, and also because of the unstratified deposits at the site, it was impossible to define rigid horizontal patterns at Sheepeater. Had it been possible to identify an occupation surface, rather than "vertical concentrations", stronger conclusions could be drawn. While it is felt the material recovered from Sheepeater is representative through time of the manner in which the site was used. It is less certain that we have the ability to say where in the site which activities always took place. This is not at argument against interpreting the distribution of artifacts horizontally through a site. It is just that in this instance to do so probably would be misleading.

Level Descriptions

The earliest cultural material recovered at Sheepeater came from Level 9 (120-135 cm) and consists of 12 obsidian percussion struck flakes. Only a single 2 x 2 square was opened at this depth and consequently little can be said about activity assemblages. However, these flakes would seem to represent generalized tool manufacturing activities. In Level 8 (105-120 cm) cultural material continues to be limited to flaking debitage. Two 2 x 2 blocks were cleared to this depth, from which 49 flakes were recovered. Again, the inferences that can be made about cultural activities are limited; the flakes are the result of both pressure and percussion tool production techniques. In Level 7 (90-105 cm) 20.5 m^2 of surface were exposed, and 83 pressure and percussion flakes were recovered. Knowledge of the activities in these three early levels is, of course, limited by the size of the excavations at this depth and by the lack of tools.

The artifacts and debitage recovered in Level 6 (75-90 cm) provide a clearer picture of the early aboriginal activities at the site. Several types of artifacts were recovered in this level. A lanceolate point, a large side-notched point, and two fragmentary corner-notched points were found. This level also produced three roughouts, a preform, a large basalt knife, and a fragment of another knife. The cultural inventory in Level 6 is more elaborate than that found in earlier levels and

allows several important inferences, particularly about the cultural affiliations and chronology.

The earliest projectile point types at Sheepeater (Level 6) are square base lanceolate and large Type 3, side-notched point. Lanceolate points similar to the specimens from Sheepeater have been recovered and dated at a number of sites. At the Wasden site (Butler 1968) lanceolate points associated with a bison bone bed have been dated at 7955 B.P. Gruhn (1961a) recovered similar points at Wilson Butte Cave where these points form part of Assemblage II, for which a date of 7950 B.P. has been suggested. As a type, the square base lanceolate endures until Level 1 at Sheepeater. At Alpha Rockshelter (Swanson and Sneed 1966), similar points were recovered in Layer 6a, dated at 4730 ± 202 years B.P.

The initial occurrence of large side-notched points seems to take place about 1000 years later than the initial occurrences of square base lanceolates at several sites. At Jackknife Cave (Swanson and Sneed 1971) large side-notch points first appear between 8130 ± 105 years B.P. and 6200 ± 155 years B.P. At Alpha Rockshelter (Swanson and Sneed 1966) the earliest date for side-notched points is 7150 ± 231 years B.P. At Hogup Cave "Bitterroot points" were recovered in Stratum 5 for which two dates were obtained, 7250 ± 100 years B.P. and 5795 ± 160 years B.P. (Aikens 1970). Large side-notched, or Bitterroot points, as Swanson (1964:62) termed them, mark the beginning of the Bitterroot Phase in the Birch Creek Valley which extends from approximately 7000 B.P. to 3000 B.P. (Swanson, Butler, and Bonnichsen 1964).

Corner-notched points have been found as early as large side-notched points. At Alpha Rockshelter (Swanson and Sneed 1966), corner-notched points from Layer 6c were dated at 7150 ± 231 years B.P. At Hogup Cave (Aikens 1970) corner-notched points similar to Sheepeater varieties were recovered in Stratum 3 dated between 7815 ± 350 B.P. and 8800 ± 200 B.P. Aikens (1970:56) further noted that these corner-notched points occurred initially at the same time as Bitterroot side-notched points. At Jackknife Cave Swanson and Sneed (1971) reported the recovery of a single sharply barbed corner-notched point in Layer 8, dated at 8130 ± 105 years B.P. The earliest datable occupation at Sheepeater began in Level 6. On the basis of typological data it seems reasonable to suggest 7000 years B.P. as a _terminus post quem_ for this level.

Besides allowing one to postulate a date for the initial occupation of Level 6, the artifactual remains from the level yielded the first indication of a cultural relationships with Western Idaho. A basalt knife recovered in this level compares quite well with basalt knives of the Midvale Complex (Warren, Wilkinson, and Pavesic 1971). A side by side comparison of both collections shows the quality of workmanship, material, and manufacturing technique of the Sheepeater knife are strikingly similar to specimens from Midvale. Another indication that Sheepeater and the Midvale sites may be related is the debitage counts. At

Sheepeater, basalt totals 24.6% of the entire assemblage (Fig. 23). This is significant in light of the fact that Swanson (1972:144 Table 8 and 9) reports finding no basalt debitage from the Birch Creek Valley. Conversely, the Midvale Complex is closely related to basalt quarrying activities (Warren, Wilkinson and Pavesic 1971). Since there are no known basalt quarries closer than Midvale sites this, in combination with the stylistic similarities of basalt artifacts, argues for some sort of interaction between the two areas.

The cultural material from Level 5 (60-75 cm) resembles the material in Level 6 in form and quantity. The artifacts from this level include elements of the manufacturing sequence: roughouts, blanks and preforms; side-notched and lanceolate projectile points; and an awl sharpener. There is also a single corner-notched point from this level.

The debitage frequency and distribution is similar in Levels 5 and 6. Total flake counts for both levels are nearly the same, 560 and 427 respectively; the percentage of obsidian, basalt, and chert (Fig. 23) reflects a stable level of source material utilization. The distribution of the debitage in Level 5 is so similar to that of Level 6 (Appendix IV) that it suggests the possibility that arbitrary levels employed in the excavation cut through a single occupation; although this cannot definitely be determined.

In general, the activity assemblage for Level 5 is very much the same as that of Level 6. Tool manufacturing and repair are suggested by the roughouts, blanks, and preforms, and the awl sharpener. This awl sharpener could also have functioned as a grinding stone, useful in edge beveling and platform preparation. The projectile points suggest hunting activities. Debitage is more than the residue of tool manufacturing; flakes provide disposable butchering tools, although the wear normally found on heavily used flakes (Semenov 1964) was not discerned on any flakes at Sheepeater. There are some evidence for heat treating of chert in Level 6, but the technique becomes more comon in Level 5 and was used whenever it was necessary or desirable to improve the flaking quality of the piece being worked (Crabtree and Butler 1964).

Briefly, Levels 5 and 6 closely resemble each other; material remains are scant, yet the archeological record is clearly the result of hunting and related camp activities.

The cultural material in Level 4 (45-60 cm) indicates continued usage of the site for tool manufacturing, hunting, etc. Frequencies of artifacts and debitage are increased, but the increase probably reflects the larger area excavated in Level 4 92 m^2 versus 42 m^2 in Level 5, rather than any intensification of site utilization. The types of artifacts in Level 4, particularly types of projectile points, are more variable than previously. Projectile point types identified in this level include Types 1 and 3 side-notched points, Types 2 and 4 corner-notched, and Elko-eared point, stemmed and stemmed-indented points,

Types 1 and 2 narrow-base lanceolate points, square base lanceolate points and Types 2 and 3 concave base lanceolate points.

In addition to the new projectile point types, classes of tools encountered for the first time at Sheepeater include a spokeshave, a perforator and three plano-convex basalt scrapers which are described here and in the Midvale Complex report as "Midvale elogates" (Warren, Wilkinson, and Pavesic 1971). Two knives were found in Level 4. One is a lateral fragment of a basalt specimen; the other is a nearly complete chalcedony leaf-shaped knife. Another class of artifact recovered in this level is pottery. Seven sherds were scattered about in three adjoining blocks. The presence of pottery in this level is thought to be the result of rodent activity.

Suggesting a date which reflects the actual aboriginal occupation rather than the disturbed situation is difficult for Level 4. By focusing on those artifacts found initially in this level, it may be possible to assign a terminus post quem to Level 4.

Point types found initially in Level 4 include: a single squat stemmed point, three Type 2 narrow base lanceolate points, a bipoint point, a Type 2 concave base lanceolate point, and two stemmed-indented base points. Of these, only the concave base point type has been found in a datable context at other sites. At Weston Canyon Rockshelter in southeastern Idaho, Miller (1972: Table 10) found similar concave base points (described as Humbolt Concave in her paper) in a provenience which she brackets between a suggested 5000 years B.P. date, and a radiocarbon date of 3740 ± 147 B.P.

At Wilson Butte Cave (Gruhn 1961a), concave base lanceolate points (described as McKean points) were recovered in Assemblage V, dated between 2000 B.C. and 500 B.C. (3950 B.P. and 2450 B.P.). Further south at Hogup Cave, Aikens (1970) recovered concave base points (described at Humboldt Concave points) from Stratum 5, up through and including Stratum 10. There are several radiocarbon dates for these layers, but the earliest dates seem to cluster around 6000 B.P., while the date on the upper layer is 2600 ± 100 years B.P. (Aikens 1970: Table 2). Green (1972) has suggested a date of 5900 years ago as the initial occurrence of concave base lanceolates (Humboldt Concave) at Rock Creek, with the interval of 3800 to 4850 years B.P. marking their greatest frequency. Clearly, concave base lanceolate points are an enduring type and are not the most useful time marker for the purposes of this report. Level 4 at Sheepeater also witnesses the initial occurrence of stemmed-indented based points. The second major occupation at Weston Canyon (Miller 1972) is identified in layers 9 through 3, and is characterized by stemmed-indented and lanceolate points similar to those recovered at the Sheepeater. Miller has suggested 3000 B.C. (4950 B.P.) as the time of the earliest occupation of Layer 9.

It is apparent the dating of Level 4 at Sheepeater can be, at best, approximate. There are no significant changes between Level 4 and 5; the same artifact classes and most point types can be found in both levels. The activity assemblage in Level 4 continues to be one commensurate with aboriginal hunting activities. In light of the dates reported for these point types at other sites, we would suggest 4500-4000 years B.P. as the terminal date of the occupation in Level 5 and the start of Level 4 occupation. This postulated date may include a large margin of error, but additional work should tighten the chronology in this portion of the state.

The activity assemblage in Level 3 (30-45 cm) continues to reflect a lifeway which is characteristic of a group of montane hunters. The artifact inventory again includes all elements of the manufacturing sequence, i.e. roughouts, blanks, and preforms, a Midvale elongate, two large knives (one of which is fragmentary), a perforator, an awl sharpener, and projectile points. The point types include Types 1 and 2 corner-notched points, a stemmed-indented base point, a squat-stemmed point and a triangular point. Also recovered in this level were 5 sherds of coarse pottery. Lithic debitage for the level totaled 1468 items.

The most notable feature of Level 3 is the absence of large side-notched points, particularly since they are found in the preceding Level 4. If this reduction in the frequency of large side-notched points is chronologically significant as Swanson (Swanson, Butler, and Bonnichsen 1964) has suggested, then the reduction in side-notched points visible in the archeological record at Sheepeater may be analogous to the decrease in side-notched point frequencies in Birch Creek Valley. Swanson's date for the termination of the Bitterroot Phase and beginning of the Beaverhead Phase hinges on a reduction in the frequency of side-notched points; this is dated at 1000 B.C. (2950 B.P.).

Large side-notched points disappear at about the same time at other sites. Aikens (1970) reports the Bitterroot points are absent above Stratum 8, dated at 3200 $\pm$ 140 B.P. At Wilson Butte Cave (Gruhn 1961a) Northern side-notched are recovered in Assemblage V which terminates at about 500 B.C. (2450 B.P.), but are absent in the overlying Dietrich Phase in Assemblage VI. Miller (1972) however, found no side-notch points after 3700 years B.P. In contrast, Green (1972) found Northern side-notched points persisting into the "Christian Era." While there is some variability in the chronological distribution of large side-notched points as evidenced by Green (1972) and Miller (1972) there is also support for placing the frequency reduction at 3000 B.P. (Gruhn 1961a; Swanson, Butler, and Bonnichsen 1964; Aikens 1970).

The upper two levels of Sheepeater, Level 2 (15-30 cm) and Level 1 (0-15 cm) are discussed as a unit. There is ample justification for this approach, because the two levels are morphologically and temporally indistinguishable. A total of 46 artifacts and 1652 waste flakes were recovered from Level 2, but in Level 1, only 36 artifacts and 915 waste flakes were recovered, suggesting possibly heavy surface collecting.

The activity assemblage in the two upper levels exhibits a wider variety of artifacts than earlier levels. In addition to the roughout, blanks, and preform manufacturing sequence, cores and core remnants were found also in these levels. Two fragmentary but unmistakable Midvale elogates were recovered from Level 1. Five scrapers, three in Level 2 and two in Level 1, were found. Utilized hinge flakes are reported for the first time in Level 2 where one specimen was recovered; another specimen was found in Level 1. A graver was recovered in each level, but no perforators or awl sharpeners were found. There were knives found in both levels; the knife in Level 2 was somewhat unusual. This specimen resembles a large side-notched point in outline but the wear and resharpening is such that is apparent the tool functioned primarily as a cutting instrument. Sherds of the same plain brown pottery were abundant in both levels. Level 1 contained 35 sherds; Level 2 contained 24. Types of projectile points recovered in these levels include side-notched points Type 1 and Type 2, the latter being found only in these two levels. Also recovered were corner-notched points Types 1, 2, 4 and 5, 3 Elko-eared points, 5 small triangular points, 2 stemmed-indented points, a square base lanceolate point and a single fragmentary large lanceolate point.

Without the benefit of radiocarbon dates, it is again difficult to compose a chronology for these levels. Type 2, or Desert side-notched points, are widely distributed in the Great Basin and have been discussed at length (Baumhoff and Bryne 1959). Their distribution in Idaho is wide-spread (Swanson, Powers and Bryan 1964; Butler 1971; Ranere 1971; Green 1972) and they are regarded as "late" in Idaho as well as throughout the Great Basin (Clewlow 1968). Desert side-notched points were heavily represented in the Dietrich Phase at Wilson Butte Cave, for which a date of A.D. 1300 has been proposed (Gruhn 1961a). At the Challis Bison Jump, Butler (1971) recovered over one hundred Desert side-notched points which were dated between A.D. 1840 and A.D. 1880 on the basis of their association with large seed beads. The pottery recovered in these levels at Sheepeater is likewise late; Gruhn (1961a) described similar pottery from the Dietrich Phase. Fowler (1968:30) reports Shoshonean pottery in Newark Cave in Level 6 or Stratum E, Area I, dated at 840 $\pm$ 340 years B.P. In the Birch Creek Valley of Eastern Idaho, Shoshonean pottery from site 10-CL-100 was dated after 365 $\pm$ 80 years B.P. (Swanson, Butler, and Bonnichsen 1964). On the basis of the proposed dates for Shoshonean pottery and Desert side-notched points it would appear that Levels 1 and 2 at Sheepeater probably are chronologically equivalent to Gruhn's (1961a) Dietrich Phase (A.D. 1300 - A.D. 1850) and Swanson's (Swanson and Bryan 1964) Lemhi Phase (A.D. 1200 - ca. A.D. 1850).

Levels 1 and 2 mark the end of aboriginal utilization of the Sheepeater site and the beginning of the accumulation of European trash. The activity assemblage of this component in Levels 1 and 2 follows the pattern established in Level 6, that of a hunting, butchering, and tool manufacture and repair camp.

In summary, it is apparent that the cultural material recovered from Sheepeater records a more or less continuous occupation of this site by a hunting and possibly gathering people. Cultural associations are postulated primarily on the basis of the debitage composition and certain diagnositc artifact styles, e.g., Midvale elongates.

Features

There was one nonportable artifact revealed in the excavation (Fig. 24). This feature consisted of an irregular pattern of angular granitic rocks and river cobbles, which were widely dispersed across the site. The distribution and location of these rocks are believed to be the result of human behavior. They are not part of the natural desposi-tional sequence of the site, and had to be purposefully carried to where they were located. These rocks had a narrow but slightly variable distribution, and it is reasonable to assume they were left at the site at about the same time. Most of the rocks were located between 10 and 25 cm below datum. Located below the rock scatter, but in association with it, was a hearth which measured 22 to 35 cm below datum. The hearth was lenticular in cross-section, and nearly circular in plan view. It was about 110-115 cm in diameter.

The hearth is datable to post-contact times, about 1850. The artifacts found in the hearth included both chipping detritus and machine cut nails (Fig. 20h-i). These nails are described as "modern" by Nelson (1968) for they cannot be distinguished from twentieth century nails.

The use of the rocks which lay on the same plane as the hearth is largely problematic. No patterns were discerned in the field. Each rock was inspected for wear, but none was detected. Some rocks appeared to be fire cracked, but there were no concentrations of such rocks which would suggest additional hearths. This feature appears to be evidence of post-contact aboriginal occupation of the Sheepeater site. The function of the feature is not known, though the disarray we found may not reflect aboriginal conditions. Elsewhere in Stanley Basin, Sargent (1973, Fig. 3 Upper) identifies a ring of stones as a possible sweat lodge but does not elaborate. Ranere, Ranere, and Lortz (1969) describe excavations conducted at two tipi rings at Mondia Pass in Eastern Idaho. Neither site appears to be definitely related to Sheepeater, but are mentioned here because they represent possible solutions to the problem of the feature's function.

Red Fish Overhang

The cultural material recovered from the Red Fish Overhang is a discontinuous record of the prehistory of the Stanley Basin during the past 10,000-11,000 years. This paper focuses on the most recent remains, all of which have been dated later than 840 B.P. (Sargent 1973).

The amount of cultural material excavated at Red Fish Overhang is considerable compared with the amount of contemporaneous material at the Sheepeater Site. The artifact inventory at Red Fish Overhang includes roughouts, blanks, preforms, cores, projectile points, scrapers, perforators, bifacial knives, retouched flakes, edge-battered cobbles, a pestle and pottery. Debitage amounted to 862 percussion and pressure flakes. The percentages of the various materials used at this site are of some interest because they contrast sharply with the percentages from Sheepeater (Fig. 23). Two activity assemblages at Red Fish Overhang were identified and because of the better preserved stratigraphy, locations in the site where these activities cluster were detected also. One of these activity assemblages is related to hunting and tool manufacturing (Fig. 25), the other to food processing. Components of the hunting/tool manufacturing activity assemblage can be found in all parts of the site, but the major portion is centered around two hearths which lie under the overhang. Associated with these hearths is 51% of all the debitage found at the site, most of which has been heat treated. There are also a core, two core remnants, three blanks, and the two edge-battered cobbles. The edge-battered cobbles may be the result of blade making, using the "cobble-edge technique" (Crabtree and Swanson 1968:50). Interestingly, there are a few blades from Red Fish Overhang which correspond to Crabtree's (1968:51) definition of edge cobble struck blades. The cores from which these blades were struck were not found, and the cores which were recovered were not blade-cores.

Elements of the second activity assemblage (which suggest food processing) are located, for the most part, in front of the boulder mass to the east of the overhang. The tools found at this activity focus are several sherds and a small pestle. There were also two blanks, two roughouts and a core; the blanks easily fit into the manufacturing sequence but their presence here may indicate their use as cutting tools.

The activity assemblages are also clusters of artifacts that can be described as male or female related. Steward (1938:190-191) noted that among the Lemhi and Central Idaho Shoshoni, men did the hunting and fishing and distributed the kill or catch to their relatives. From this it may be inferred that the activity assemblage at the Red Fish Lake Overhang described as a tool manufacturing assemblage, specifically related to manufacture of hunting equipment is male associated. Lowie (1924:198) indicated that Paviotso women went along with the hunters to cook for them during rabbit drives. Regarding women's activities among the Wind River Shoshoni Lowie (1924:203) writes:

> The Wind River Shoshoni said that about August their women used to gather roots, storing them in bags for the winter. Wild carrots were gathered all the time and are still gathered in the fall. They [the women] used a digging stick of grease-wood. Choke-cherries and sarvisberries [serviceberries] were pounded up and dried, and gooseberries were dried, but neither cherries nor berries were mixed.

The Red Fish Overhang activity focus from which pottery and the pestle were recovered is inferred to be female-related. Steward (1938:190) reported that during certain gathering activities in the Lemhi area a number of related families traveled together. There is no evidence for large numbers of related families at the Red Fish Overhang, and it seems reasonable to suggest the site was a small encampment of a few men and women.

Summary of the Cultural Stratigraphy

In the preceding chapters, I have presented a number of data which shed light on many aspects of the prehistoric way of life of the aboriginal occupants of Stanley Basin. These data, in addition to those presented in Appendices I, II, III and IV are reviewed below in order that we might begin to formulate an explanatory model of the prehistoric settlement pattern in this area.

The analysis of the material culture from Sheepeater leads to several conclusions. First, the Sheepeater Site represents a relatively stable pattern of exploitation of a mountain environment. At Sheepeater, the total number of tools, flakes and other lithic debris is 6661 pieces. This assemblage consists of 181 (2.7%) recognizable tools and some 6480 (97.3%) are recent pieces of lithic debris (Fig. 23). Of these 181 tools, 88, or fully one-half, are projectile points or point fragments. Another 53 (29.2%) are elements of the biface reduction sequence, i.e., roughouts, blanks, and preforms. This indicates that over 77% of all the identifiable tools are directly or indirectly related to hunting or hunting related activities. Because the majority of tools recovered can be assumed to relate to hunting activities, we can suggest that the stable adaptation was based on such a subsistence pattern.

Second, this stability in exploitative practices is visible in each occupation level. The resemblance of the levels to each other through time is striking. Third, paralleling the stability in the exploitation pattern is an equally stable pattern of raw material use at Sheepeater. From Level 6 through Level 1, the percent frequencies of obsidian and basalt vary less than 7%. Chert, ignimbrite and jasper and other minor components are similarly stable (Fig. 23). Fourth, both obsidian and basalt are exotic in the Stanley Basin. A trace element analysis of the obsidian allows us to tentatively suggest that the source of this material is Timber Butte in Western Idaho (Appendix I). No source analysis was undertaken on the basalt, but usable outcrops of the material are known from the Timber Butte vicinity. In particular, one source is located near the site of the Midvale Complex (Warren, Wilkinson, and Pavesic 1971), which contains tool forms typologically related to some of those from the Sheepeater Site. The inference that much of the raw material found at Sheepeater has been imported seems reasonable. The final point to be made regarding the Sheepeater Site is that it apparently has recorded this stable pattern of utilization for approximately 7000 years.

The chronology of this site was difficult to develop since no datable material was found at the site and because there are few radiocarbon dates for the Stanley Basin as a whole. The problem of constructing a chronology was attacked from two directions. First, using data from a number of dated sites elsewhere in the Great Basin, the various excavation levels at Sheepeater were cross dated, assigning either initial or terminal dates based on the occurrence of certain projectile point types. Wherever possible, levels were bracketed, although somewhat tenuously. This effort resulted in the portion of Fig. 26 described as "X-Correlations." An attempt to establish a relative chronology at Sheepeater using rates of hydration of obsidian was also made (Appendix II). An intial hydration rate was calculated on a cache of obsidian blanks found at the Red Fish Overhang which had been carbon dated at 9860 $\pm$ 300 years B.P. The calculated rate of hydration was then used to derive absolute dates for various levels at Sheepeater. This technique met with only indifferent results although it would appear that the proposed chronology of Sheepeater (Fig. 26) is not entirely incorrect.

The problems and interpretations encountered at the Red Fish Overhang material were somewhat different. While the sample of tools and other artifacts (943) is smaller than that found at Sheepeater, the percentage of recognizable tools at this site accounts for nearly three times as much of the assemblage than at Sheepeater (8.6% vs. 2.7%). On the other hand, projectile points (34, 42.0%) and elements of the biface reduction sequence (20, 24.7%) account for only 66.7% of the Red Fish Overhang tools compared to 77% at Sheepeater. Thus, at Sheepeater, hunting and hunting related tools account for nearly 11% more of the assemblage than they do at the Red Fish Overhang.

Hunting is clearly an important activity at both sites, yet there are indications there is an important difference between the sites. At the Red Fish Overhang there are three classes of tools which are absent at Sheepeater: retouched flakes, pestles and edge-battered cobbles. Simply the presence or absence of these artifacts is not enough to indicate any striking cultural differences although they can easily be taken to indicate that some activities practiced at Red Fish Overhang were not conducted at Sheepeater. The pestle and the retouched flakes are possibly vegetal processing tools. The edge-battered cobbles may indicate a specific type of flintworking, i.e., blade production. At the Sheepeater Site, we find awl sharpeners (arrow shaft smoothers in other contexts), a spokeshave, and Midvale elongates. A functional interpretation of these tools is somewhat risky, but it can be suggested that they are related to the manufacture and repair of hunting tools. A reasonable inference one might draw from these assemblage differences is that the Sheepeater Site served primarily as a hunting camp while the inhabitants of Red Fish Overhang exploited a larger portion of their environment, probably including many vegetal resources.

Because of the disparity in the length of occupation at each site, it is difficult to estimate whether the differences noted for Sheepeater

and Red Fish Overhang have any great antiquity. At Sheepeater, there is some evidence to suggest that the predominant pattern of activity at the site, hunting, persisted for a long period of time. There is no similar long record of occupation at the Red Fish Overhang, although there is evidence of prior occupation (Sargent 1973). The most difficult problem faced in this paper is the cultural relationships of Sheepeater and Red Fish Overhang. Are these site activity variants of the same cultural complex, or do they actually represent different patterns of exploitation by different people in one area?

At this time it is not possible to adequately answer this question based on the available data. If seasonality could be demonstrated for these sites, or if Red Fish Overhang had a sequence equal in time depth to Sheepeater, it might be possible to better evaluate these differences. Likewise, if the source of the various raw materials were better controlled this would also shed a great deal of light on our problem.

The proximity of the two sites seems to be the strongest argument for considering these sites activity variants of a common pattern. Yet this ignores the problem of the western origin of much of the Sheepeater raw material and the probable local origin of the Red Fish Overhang raw material. It also fails to explain the marked dissimilarities in the assemblages of the two sites. While this position might explain the differences in site function, it would only postpone the necessity of eventually integrating them into one or more regional settlement models.

This brings us to the conclusion of this paper by way of proposing a model of prehistoric settlements that will foster a more systematic view of the archeology in this area and offer a potential explanation for the differences which have been detected in these two sites.

VIII. MODELS OF PREHISTORIC SETTLEMENT PATTERNS

The concept of a settlement pattern has been defined variously by different authors. Chang (1968:3) has defined an archeological settlement as:

> The physical locale or cluster of locale where the members of a community lived, ensured their subsistence, and pursued their social functions in a delineable time period. In space, then, an archeological settlement need not lie in one continuous expanse of ground, but it must be occupied and made use of by a single group of people . . . if a repetitively occupied site with a great depth of cultural debris can be demonstrated to have been the locus of a single community or several occupations in which no significant or meaningful changes in community structure took place, then we may consider the site to be that of a single archeological settlement.

While Chang tends to focus on the morphology of a settlement, he makes an important distinction between the internal and external articulations of settlements. He argues (Chang 1968:7) that the larger social unit which is composed of individual settlements comprises a macrostructure whereas the individual settlements themselves form microstructures. He suggests these concepts are critical to the archeologist who is concerned with various spheres of activities.

Trigger (1967:151) has proposed that settlement archeology is the study of social relationships in synchronic and diachronic frameworks using archeological data. In an analysis of Iroquoian warfare, Trigger (1967) uses archeological data to demonstrate some of the limitations of settlement pattern data.

Struever (1968a, 1968b) has offered perhaps one of the most explicit discussions of settlement pattern archeology. His initial premise is that culture is an adaptive system composed of " . . . functionally interdependent parts in which change in one aspect is related in specifiable ways to changes in others" (Struever 1968a:133). It is Struever's (1968a:135) position that with a systemic view of culture one can expect the remains of an extinct subsistence-settlement system will reveal a structured set of relationships. He defines three levels of structured remains: the activity area which we have described as an activity assemblage after Rouse (1972); the settlement type which is a site typology constructed from the analysis of activity areas; and the regional settlement system which is built up from, and reflective of ". . . the kind, number and distribution of settlement types" (Struever 1968a:135). Struever (1968a:135) points out the fundamental assumption here is that the biophysical environment is structured and that culture articulates with this environment in a complex set of relationships which are themselves adaptive. (Struever (1968b) has used this concept of human settlements to establish a model of culture change during Middle Woodland times along the lower Illinois Valley.

Coe and Flannery (1971:132-133) have argued the structured physical environment is composed of a series of microenvironments. Microenvironments are subdivisions of larger ecological zones and which provide specific situations or niches to which cultures adapt in a manner specific to that microenvironment. Their work in the Tehuacan Valley has demonstrated the utility of this concept in analyzing the development of agriculture in Meso-america and also provided useful information on the settlement pattern in this area.

In the development of settlement models, which are only a means to an end and not an end in themselves, other data such as ethnographic information have been used effectively. Binford (1967) has argued that the use of ethnographic analogy to interpret archeological situations, while powerful, allows the investigator to formulate postulates rather than explain the archeology. The formulation of such postulates necessitates the testing of a series of hypotheses in order to verify the postulate. In our analysis of the prehistoric settlement pattern we have attempted to formulate a hypothetical model as Binford suggests.

Thomas (1973) essentially has adopted Binford's position, and he views Steward's (1938) model of Great Basin Shoshonean populations as simply a set of testable hypotheses. Thomas, in a number of papers, has focused on the Reese River Valley in order to use archeological data to test the Steward model. Thomas proceeds by identifying the various microenvironments in the Reese River Valley and by predicting the archeological remains one would expect based on Steward's description of seasonal population movements.

The analysis of the archeological data collected in the Reese River Valley required the use of a computer simulation model in order to test the proposed hypotheses. In comparing the resulting frequencies of various artifact assemblages within microenvironments against expected frequences, Thomas (1973:172) found over 75% of all predicted frequencies were verified. He suggested the verified frequency would have been higher except for the failure to predict certain relationships within the model. Thus, Steward's (1938) model is verified for a period described by Thomas (1972:172-173) as medithermal to the historic present.

In the studies discussed above (Struever 1968b; Coe and Flannery 1971; Thomas 1973) the investigators viewed the analysis of settlement patterns as a critical problem prior to entering the field. In this report, the study of settlement patterns has been an inductive venture. A consideration of other attempts at settlement pattern analysis in Idaho, reveals that settlement pattern studies consistently have been examined retrospectively. It is argued the analysis of settlement patterns should receive the same consideration in research design as more traditional problems such as chronology, typology, and environmental reconstruction (cf. Skinner and Gallagher 1974).

Settlement Models in Idaho

Prior to the analysis offered in this report, there have been only two attempts to consider settlement patterns in studies dealing with Idaho prehistory. The first was that of Swanson, King, and Chatters (1969). The purpose of this study was to inventory the archeological resources within the Salmon BLM District; at the conclusion of the survey, data on 311 sites in five valleys in eastern Idaho had been collected. Despite the logistical problems discussed in the report, the authors were able to make some generalizations about site distributions. These data are presented in a single chart (Fig. 27); unfortunately in this form, the information is not very useful. The principal problem is that the site distributions are presented as densities without taking into account the kinds of sites described. Swanson, King, and Chatters (1969) never make it clear how a rockshelter or an open campsite with features, differ from each other or other types of sites except topographically; although this would seem a basic question. Obviously, some consistent criteria are needed to assess sites; Struever's (1968a).

The other attempt to examine settlement patterns or at least site distributions is that of Harrison (1971). This report describes the results of an archeological survey of a 250 mile stretch of the Salmon River. As a result of this survey, 241 new sites were recorded; this, combined with the 58 previously known sites, brought the total of known sites to 299 - seemingly an adequate sample from which to construct at least a model of the settlements within the river valley. That no model was ever developed is not the fault of Harrison who writes (1971:8):

> In keeping with the general nature of the inventory survey the surface collection of artifacts did not involve any particular sampling. As many artifacts and related material (e.g., bone fragments, mussel shell) as could be found at each site were collected. At some sites no cultural material could be found; at others, only a few artifacts were recovered, while at still other sites, many artifacts were collected. In general, however, perhaps only ten artifacts were collected from the majority of sites.

There are several problems with this approach. First, the "grab" method of collecting sites destroys part of their internal structure if the artifact locations are not noted. Second, with this inconsistent collection technique, it is difficult to see how the collected assemblages could be used to define site types. Once again, chronological controls such as those necessary to analyze settlement patterns, are difficult but not impossible with only survey data. At the same time, describing arbitrary site density zones such as those shown in Fig. 28 as a settlement pattern, seems to be overstating the case. This method of analysis may be adequate for assessing cultural resource volume and potential impact of proposed projects, but it does little to further our understanding of man's relationships to his environment.

Generally, these surveys have not been undertaken to investigate specific problems, and their approach often is strictly one of locating sites and providing an index of site potential. The goal of such a survey is to give the archeologist the data to excavate the "important" sites. The criteria here for importance seems flexible and somewhat individualized. Certainly these data are needed, but criteria to identify sites which are critical to the understanding of the prehistory of an area should be explicit and incorporated in the investigators' research design (Binford 1964). More and more surveys are being undertaken with specific problems in mind (Skinner and Humphreys 1973; Fox et. al., 1974).

Survey data, while they can be used to test problems and establish models which are testable, complement excavation data in the development of settlement pattern models. At the level of the individual site, the analysis of activity areas such as those proposed by Struever (1968a) is a fundamental task. Green (1972) and Ruebelmann (1974) have described activity areas at sites in southern and western Idaho respectively. The key to their analysis was that they were able to strip large, horizontal areas of their sites and map artifacts and chipping waste in place or in small units. The resulting distribution maps provide some important information on the sites internal structure; the bulk of the excavations in Idaho have failed to provide these data.

The majority of excavated sites in Idaho have been rockshelters, caves or other similar structures which contain well defined stratigraphy and good preservation of organic remains. Some of the best excavated of these are located in eastern Idaho in the Birch Creek Valley (Swanson 1972). Unfortunately, the data from these excavations do little to enlarge our perspective on settlement patterns in this position of the state, in terms of the model proposed by Struever (1968a).

Swanson's purpose in excavating sites in this portion of the state was to answer questions about the development of northern Shoshoni prehistory (Swanson 1972:187). As a result of Swanson's impressive efforts, much of the debate regarding these problems may have been laid to rest. At the same time, questions regarding the distribution of prehistoric populations remain to be answered. Part of the reason we still know very little about the distribution of these populations across the state is the usual methods of excavating well stratified sites are inappropriate for attacking problems relating to settlement patterns (cf. Brown and Struever 1973 for a similar view). If Struever (1968a,b) is correct in that regional settlement models need to be built upon the definition of settlement types, then there must be an attempt to define the internal structure of the site. Swanson (1972:27-35) reports, however, the sites were normally trenched rather than horizontally stripped. This precludes reconstruction of activity areas in these sites; those features which are described seem isolated in the site and there is no clear way of relating them to the assemblages from those

layers (e.g., Swanson 1972:74-79). Green (1972:93) has stated the problem succinctly, "Vertical tabulations alone cannot afford a picture of how material culture is dispersed over the site in any single level." Consequently, Swanson's description of the settlement pattern in eastern Idaho should be viewed as hypothetical rather than as proven fact.

As Swanson points out (1974:188), no village sites were excavated during the life of the Birch Creek Project. Therefore, while we have information on the temporary occupations in the prehistoric seasonal round, we lack information on a major portion of the annual cycle of the prehistoric Northern Shoshoni. This would seem to suggest that an alternate approach to the study of regional prehistoric problems, possibly one which involved selected sampling of the regional universe, might be more relevant to settlement pattern analysis.

The primary premise of the model presented in this report is similar to that of Swanson (1972:5). It assumes the ethnographic model presented earlier represents the end product of a long developmental sequence. In addition, if this ethnographic model is applied to the archeological past it is argued that it can serve as a useful investigatory tool. This ethnographic model is summarized as follows: During the late prehistoric and early historic times, two related yet distinct groups exploited the resources of the Stanley Basin. One group was based in western Idaho, the other in the central mountain area near the Salmon River. For a number of reasons, especially geographical, ecological and cultural, these groups participated in rather distinct seasonal rounds. This resulted in two rather distinct sets of responses to the environment of Stanley Basin in terms of site function and settlement patterns.

The responses of the western Idaho group focused on the need to build up stores of meat in the fall and late summer in preparation for the winter. Hence, there was a heavy emphasis on hunting activities. Stores of vegetal products may have been built up at this time but there is no evidence for it at the Sheepeater Site. The set of responses of the central mountain groups were organized for simple subsistence maintenance through the summer and only later in the season would much attention be paid to accumulating food surpluses. Hence, the response of this group would have been more varied than that of the western Idaho group, primarily because multiple resources were being exploited.

The archeological data from Sheepeater and the Red Fish Overhang clearly indicated the usefulness of extending this model into the prehistoric past. We have suggested that Sheepeater and the Red Fish Overhang fit this ethnographic model well. Although the model cannot be assumed to be fully proven, it is suggested.

Before this or any ethnographic model could be extended into the archeological past, a number of ancillary studies would have to be undertaken. Initially, the biotic and abiotic resources of the area would have to be fully analyzed in order to derive both locational and

quantitative control over these resources. Second, the Stanley Basin would have to be systematically surveyed, at which time it would be possible to establish alternate hypotheses. For instance, were there associations between site type (both functional and chronological) and resource location? These data alone could suggest very fruitful avenues of investigation in addition to the study of settlement patterns proposed here.

Assuming that such preliminary surveys were carried out, and they did not disprove the ethnographic settlement pattern model, how might the test implications of the model as applied to excavated archeological data be formulated? The following is one possibility:

Model: The archeological resources of Stanley Basin can be dichotomized into two classes. The first consists of those sites which show limited site function with special emphasis on hunting activities. These sites are relatively small, accommodating less than 10 individuals. The artifact assemblage is restricted with heavy emphasis on a hunting and butchering tool kit. These sites show evidence of repeated short occupations. There is little evidence for house features or other forms of enduring habitation. Physical evidence for extensive vegetal preparation (roasting pits or ovens) and number of food grinding tools are low or absent. A second complex can be hypothesized that would be the result of a more diverse exploitation of the Stanley Basin. Sites within this complex would tend to be larger than the first complex in terms of total area, although absolute population size may be about the same. While hunting would be important in this complex, other activities such as vegetal product collection and preparation, fishing or shellfish gathering might also be identified. Occupation would be on a seasonal basis, but we can expect to find evidence for more enduring habitation. These sites would show greater variability in the artifact assemblage and associated features. Roasting pits or ovens should be more common. If the occupation lasted for any length of time, we can expect to find some evidence for ceremonial or community activities associated with these sites, for instance sweat lodges.

The model outlined here represents only the beginnings of what, by every indication should be a rather complex undertaking (Hill 1970). In any intensive investigation of settlement patterns, alternate hypotheses would be formulated to allow for research flexibility and provide options if conflicting data do come to light.

No mention has been made of probable site locations, resource availability, site densities, or the other factors that are important in any study of settlement patterns. While hypotheses could be formulated at the survey level of investigation, this is well beyond the scope of this report. Many of these hypotheses also could be derived from additional ethnographic research.

To conclude this section, it can be pointed out that the understanding of prehistoric settlement patterns continues to grow. In Idaho, Swanson's (1972) work will provide a starting point for a number of spin-off studies. It should be possible, in fact, to combine the two views on settlement patterns, Swanson's and that presented in this report, to generate yet other models of aboriginal settlement patterns. The data presented are not conclusive, yet they demonstrate that alternate views of the prehistory of Idaho are viable.

IX. SUMMARY AND DISCUSSION OF THE ARCHEOLOGICAL DATA

In the preceding chapters, the data from three sites in the Stanley Basin of Central Idaho have been described and interpreted. Two of the sites were systematically excavated; the third, the Old Stanley Ranger Station, was exposed during construction of a sewer pipeline and is briefly reported in Appendix III.

The bulk of the data presented is derived from the artifacts recovered from these sites. The analyses of the deposits enclosing these remains have also been discussed, but because the sedimentary record of Sheepeater Battleground and Red Fish Overhang could not be tied together, it was impossible to use this information to analyze recent environmental situations in the Stanley Basin. Faunal remains from all sites were almost totally lacking. Other than stone tools and debitage, there were few data.

The available data have been used in two ways: first, a chronology for the Sheepeater site was proposed; and second, cultural affiliations for Sheepeater and Red Fish Lake Overhang were suggested. Typology enters into both types of analyses, and certain artifact types, primarily projectile points, have been used to suggest dates for certain levels at Sheepeater. Because this site was excavated in relatively large arbitrary levels, and because rodent activity caused an unknown amount of mixing, it was not possible to make precise chronological determinations in all cases. We also attempted to estimate dates for these levels using calculated obsidian hydration rates. There were some difficulties with this technique and these have been discussed above. It should be noted that the chronological cross correlation of artifact types and the obsidian hydration study suggest the initial occupation of Sheepeater began about 7000 years B.P. Since radiocarbon dates were obtained at Red Fish Overhang, typological cross correlations were not undertaken for that site. The cultural material from Red Fish Overhang described in this report has been dated to later than 840 B.P. (Sargent 1973).

Under headings "Artifact Descriptions" and "Cultural Stratigraphy," I have pointed out the assemblages from Sheepeater and Red Fish Overhang conform to the general pattern described for similar sites in the northern Great Basin (Gruhn 1961a; Warren, Wilkinson, and Pavesic 1971; Corliss 1972; Swanson 1972). In terms of general stylistic attributes, these sites are in no way unique, and their cultural affiliations are clearly with the northern Great Basin. The major question is not so much to what degree these sites resemble other northern Great Basin sites, but rather other sites in the immediate area.

It is felt that before considering inter-regional relationships it is necessary to understand the intra-regional relationships. Excluding for the moment the Old Stanley Ranger Station Site for which there are very few data, we must investigate the similarities and dissimilarities between Sheepeater and Red Fish Overhang. One possible place to begin

such a discussion would be the taxonomic similarities and differences between these two sites, but Binford (1972:247) has argued strongly against this application of taxonomy which assumes that:

> the quantity of differences as measured by some taxonomic evaluation among assemblages is a measure of the ethnic affinity between the groups responsible for the archeological remains.

Thus, the question "were the people who occupied these sites enthnically related" cannot be answered using simple taxonomic techniques. Indeed, it may be an improper question unless culture is viewed normatively (Binford 1962). Leaving the question of ethnic relationships aside the major differences between these sites fall into three classes: chronology, frequency with which certain raw materials occur and functional differences in the assemblages.

The chronological disparities have been elaborated on at length and need not be reiterated. The frequencies of the raw materials used at these two sites are vastly different (Fig. 23). The materials which, by virtue of their abundance, characterize Sheepeater are obsidian, basalt, and chert; the most common raw materials at Red Fish Overhang are chalcedony, obsidian and ignimbrite. Because the obsidian at Sheepeater has been tentatively identified as from Timber Butte, we have suggested that it and possibly the basalt (which may be from a western Idaho source also) have been imported into the Stanley Basin. The Red Fish Overhang raw material is apparently local in origin (Sargent, personal communication 1973). Interpreting this difference is somewhat of a problem because of the disparity in the time span between the two sites. At Sheepeater, there is a long time span wherein the relative amounts of material used remained nearly constant; it is argued this represents a stable source of material and stable pattern of utilization. It appears that Sheepeater represents a cultural system in equilibrium. Because there is a chronological overlap (post A.D. 1110) between both sites and also because Red Fish Overhang does not manifest the Sheepeater pattern during this time of overlap, it is felt that Red Fish Overhang represents another pattern of resource procurement. Whether it is representative of another stable cultural system or the Sheepeater system in a state of temporary disequilibrium is not clear. In either case though, Red Fish Overhang may be considered to be a manifestation of another type of subsistence procurement. The fact that the raw material frequencies of Red Fish Overhang resemble a pattern of utilization and presumably availability, noted in eastern Idaho (Swanson and Sneed 1966; Swanson 1972:144), suggests the possibility these sites actually are the archeological remains of two different seasonal rounds with Red Fish Overhang, on the basis of raw material selection alone, being associated with an eastern or central Idaho culture pattern.

If these sites actually represent separate seasonal rounds, and this is hypothetical, we might also expect there would be functional differences between these sites. In the description of these sites, we have pointed out an important distinction between Sheepeater and Red Fish Overhang while the former site is definitely a hunting camp, as evidenced by its activity assemblage, the latter is better described as both a hunting and a vegetal processing camp.

If we frame these functional differences in the same manner as the lithic debris frequencies, then the activity assemblage from Sheepeater represents a long, consistent exploitation of the Stanley Basin. Whether Red Fish Overhang represents a similar stable system, with a long record of exploitation of the basin, cannot be determined on the basis of present information.

Finally, a model of the aboriginal settlement pattern and seasonal rounds in western and central Idaho has been offered. As Flannery (1972:107) has noted, "To be useful a model need only organize a body of data in such a way that hypotheses can conveniently be tested, accepted, modified or rejected." It is my hope that requirement has been met.

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Fig. 1 Landforms map of Idaho. Outlined portion is shown in greater detail in Fig. 2 (courtesy E. Raisz).

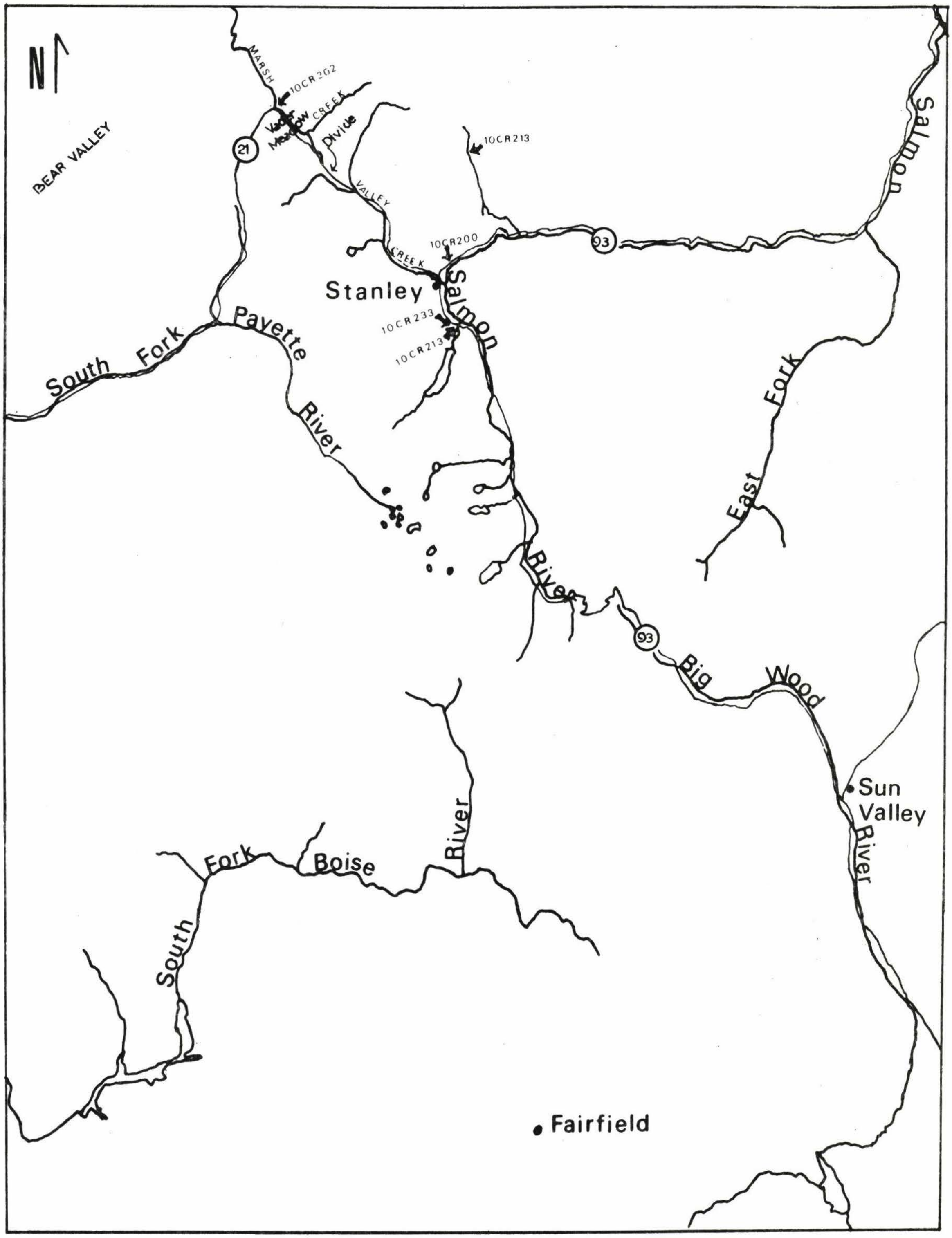


Fig. 2 Major rivers and sites in the Stanley Basin.

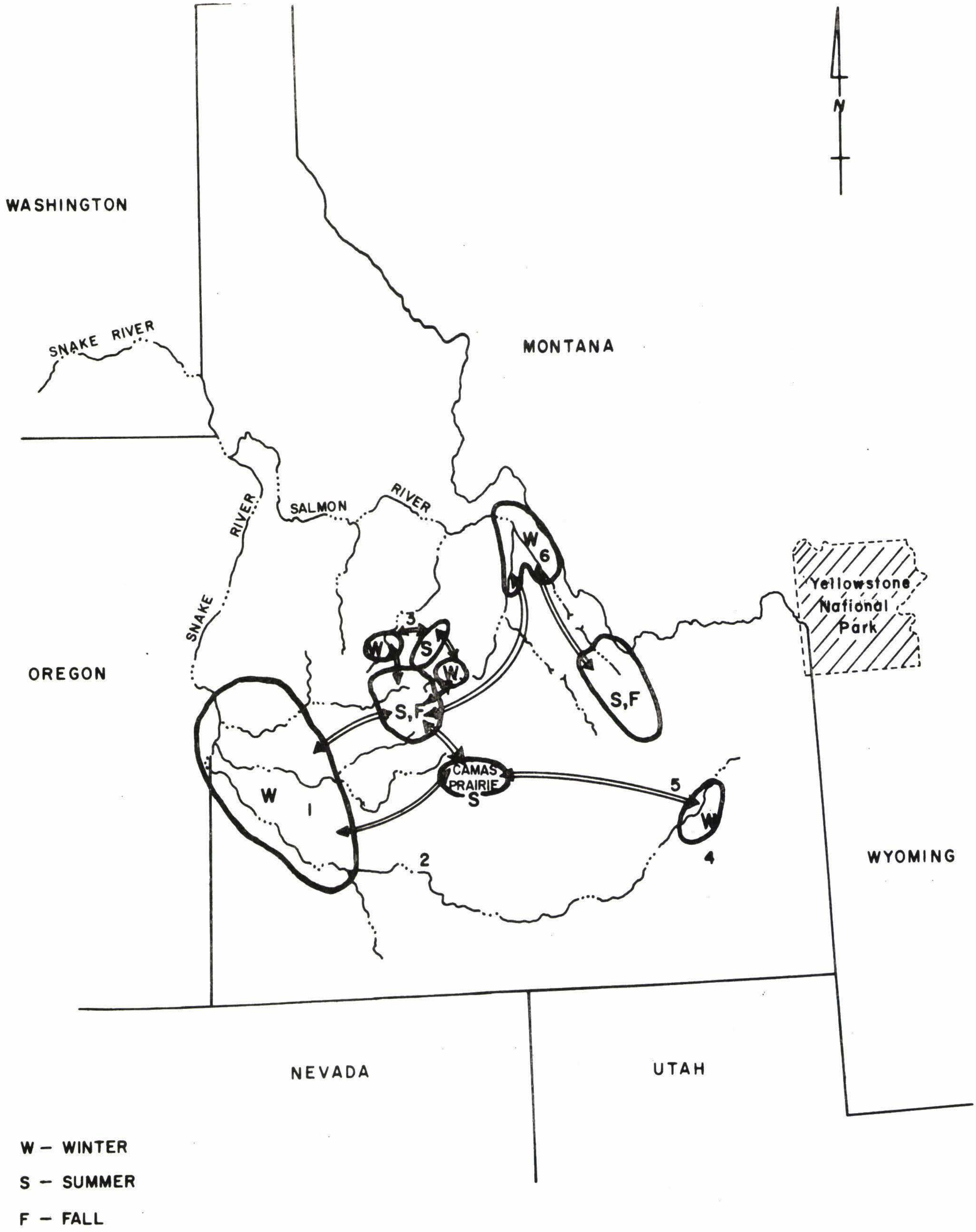


Fig. 3 Location of certain Shoshone Populations in Idaho and a reconstruction of their seasonal movements.
1) Boise and Weiser River Valley Population,
2) Middle Snake River Population, 3) Sawtooth Mountain Population, 4) Bannock Creek and Bear Valley Population, 5) Upper Snake River and Fort Hall Population, 6) Lemhi River Population.

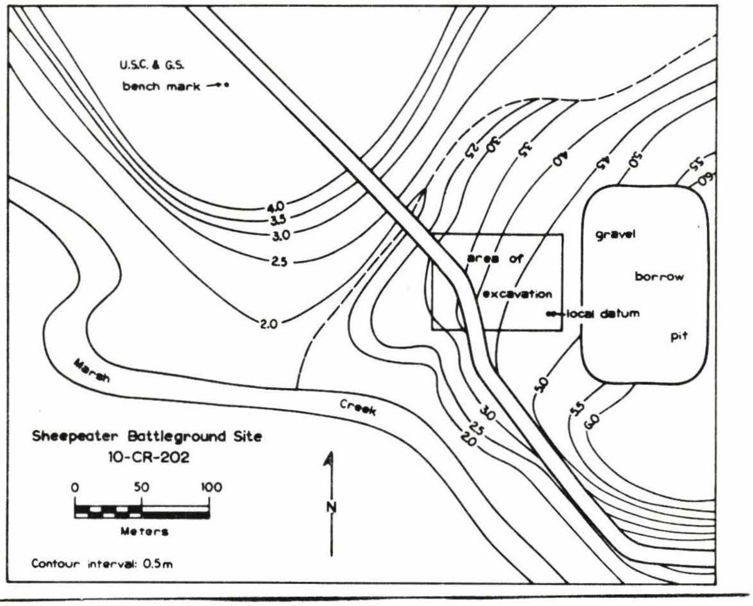


Fig. 4 Contour map of the Sheepeater Battleground Site. Outlined area of excavation is shown in Fig. 5.

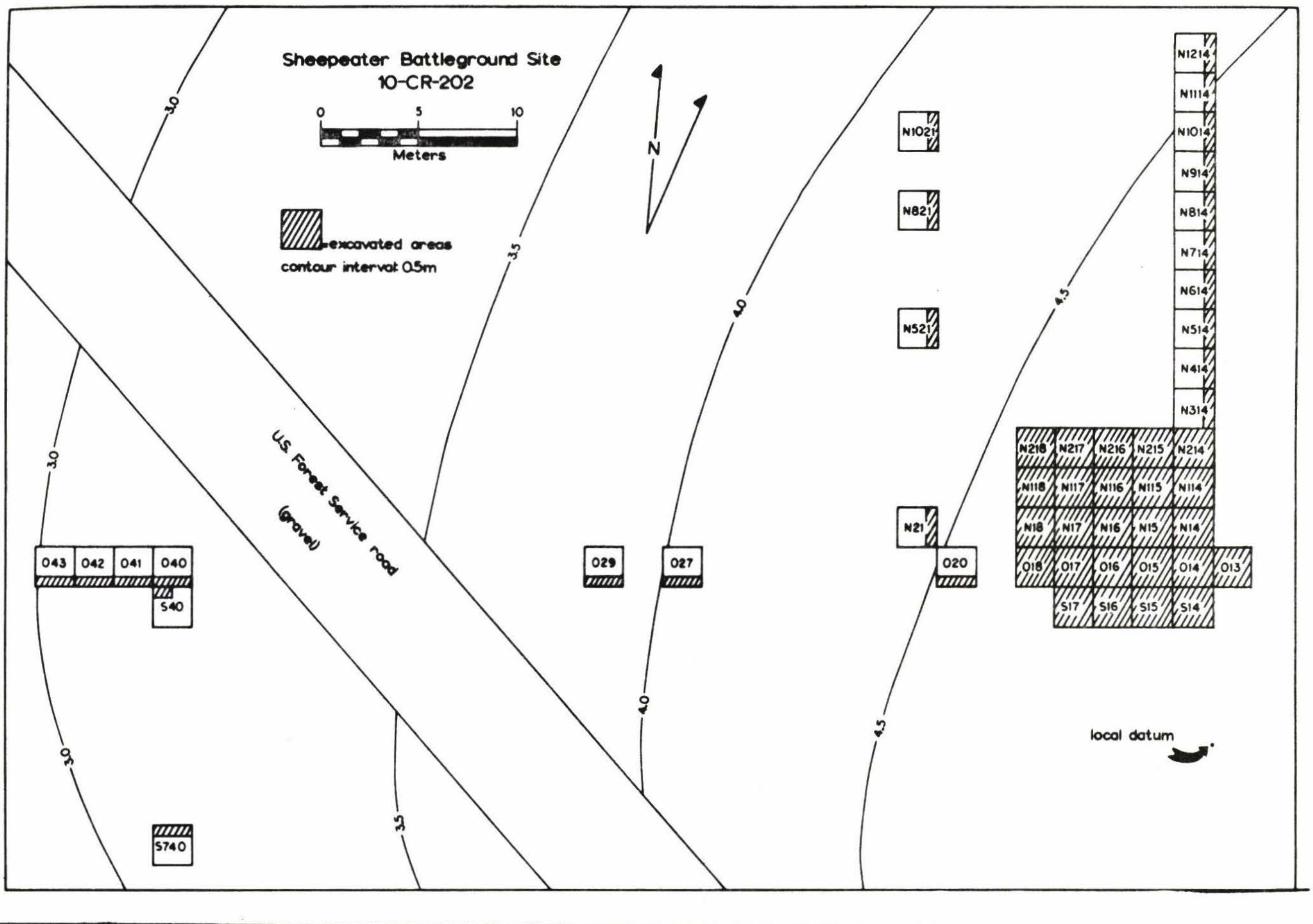


Fig. 5 Excavation units at the Sheepeater Battleground Site.

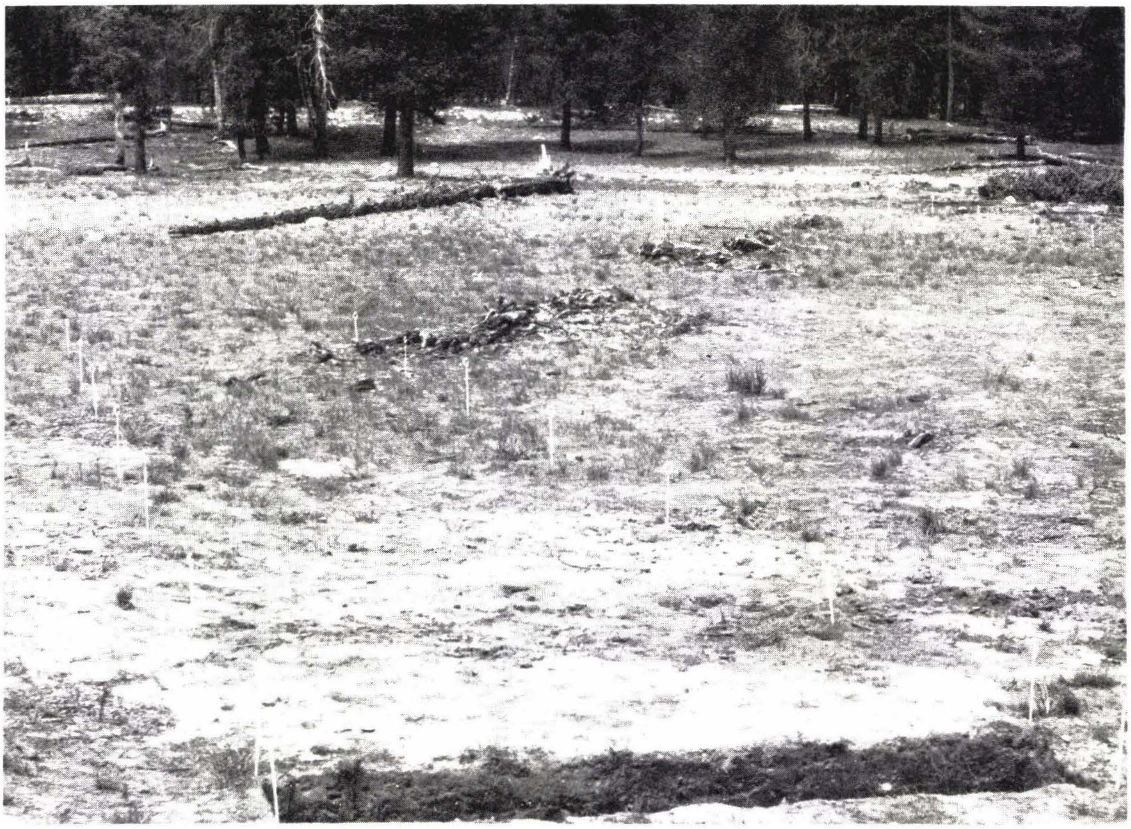


Fig. 6 Surface of the Sheepeater Battleground Site at the start of excavations.

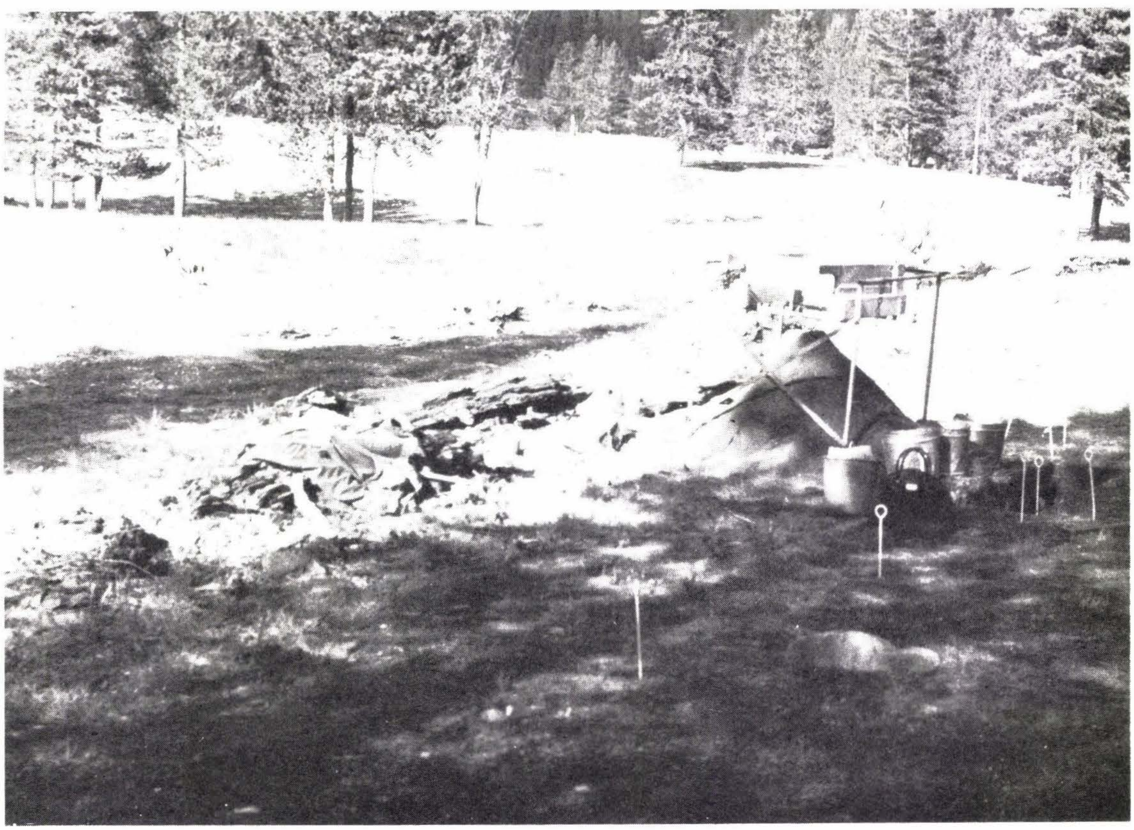


Fig. 7 The start of excavations at the Sheepeater Battlegound Site.

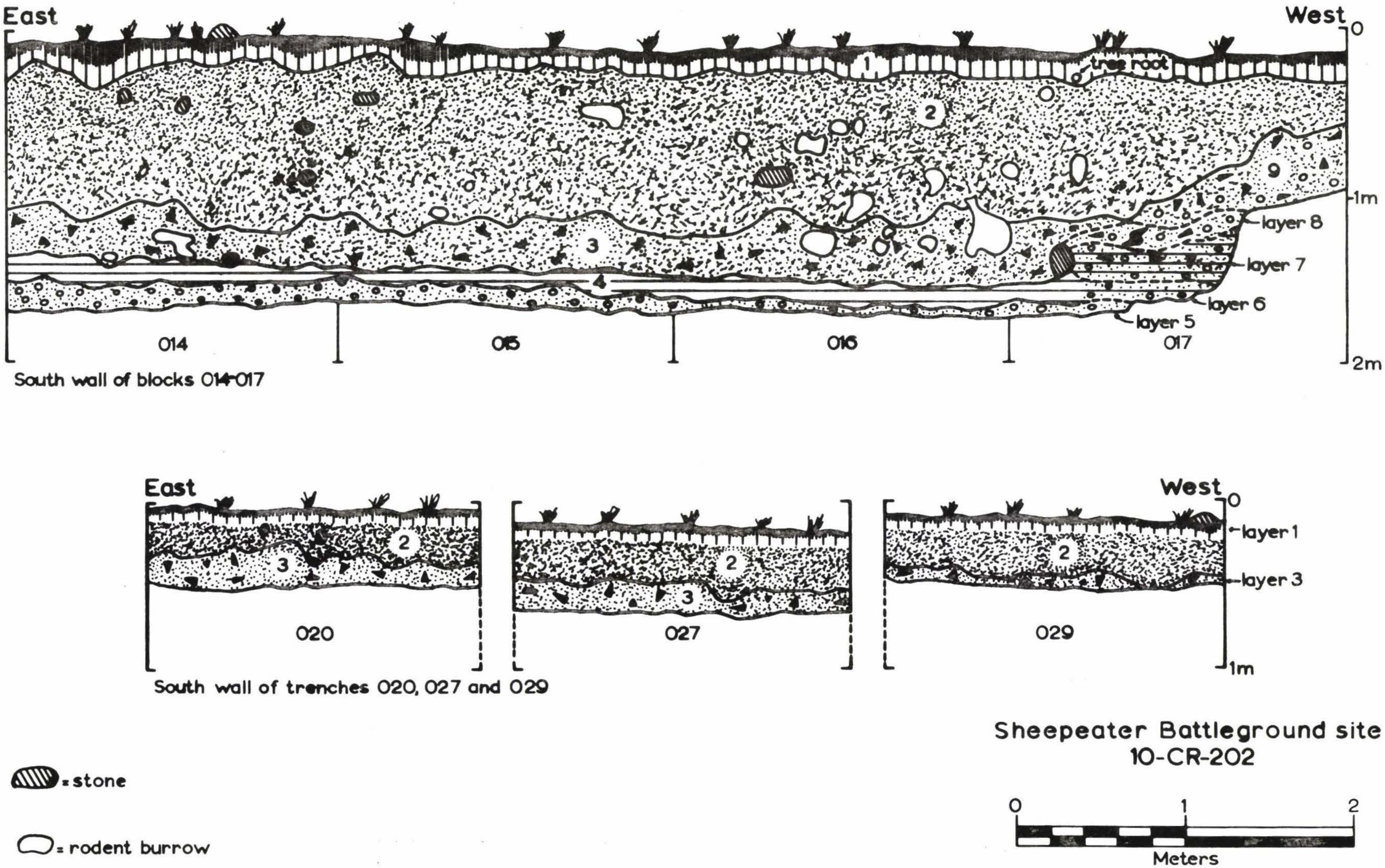


Fig. 8 Stratigraphic profile of the Sheepeater Battleground Site (see text for description of Layers).

Fig. 9 The Red Fish Overhang Site.

Fig. 10 The Old Stanley Ranger Station Site.

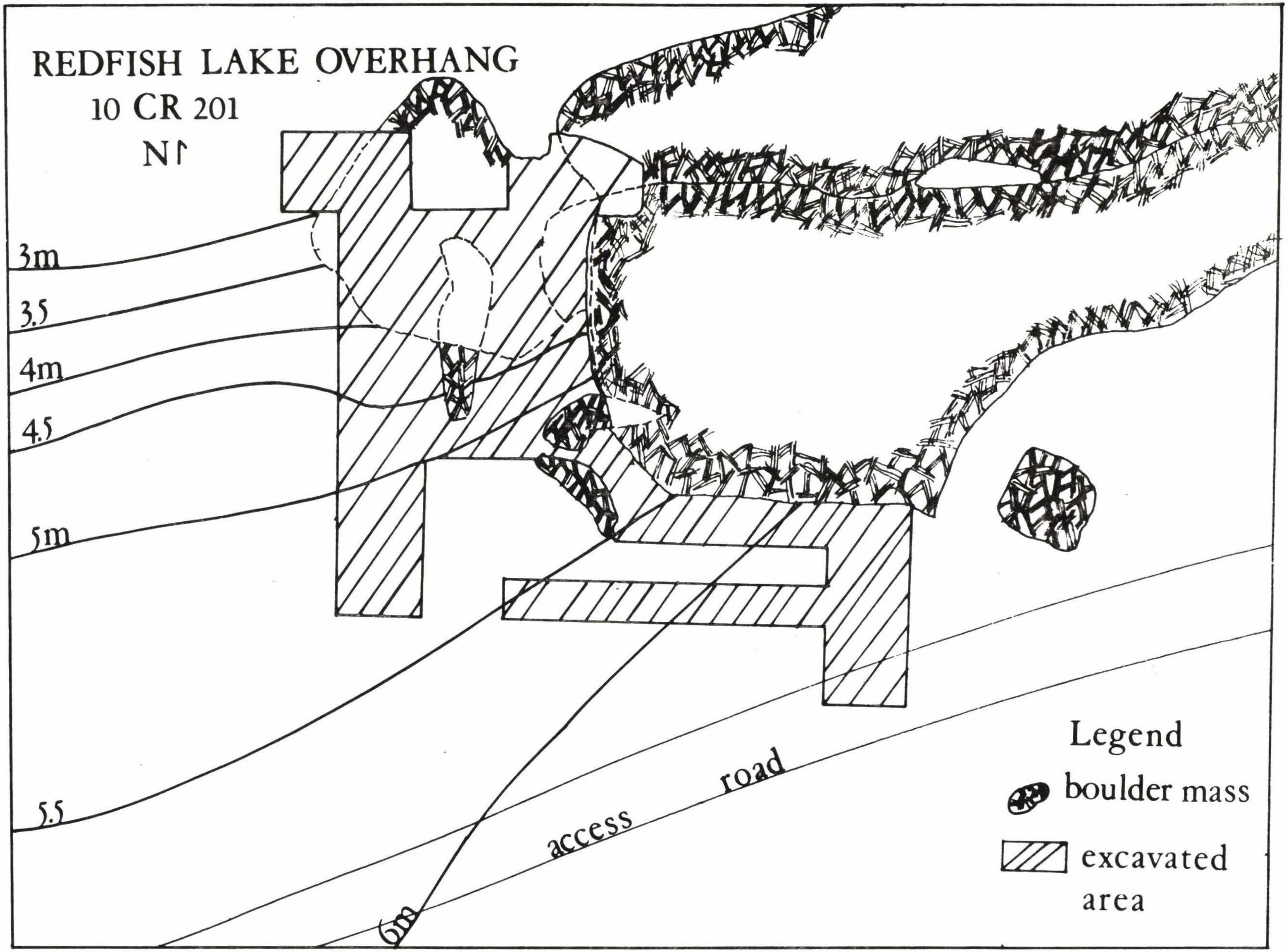


Fig. 11 Contour map of the Red Fish Overhang.

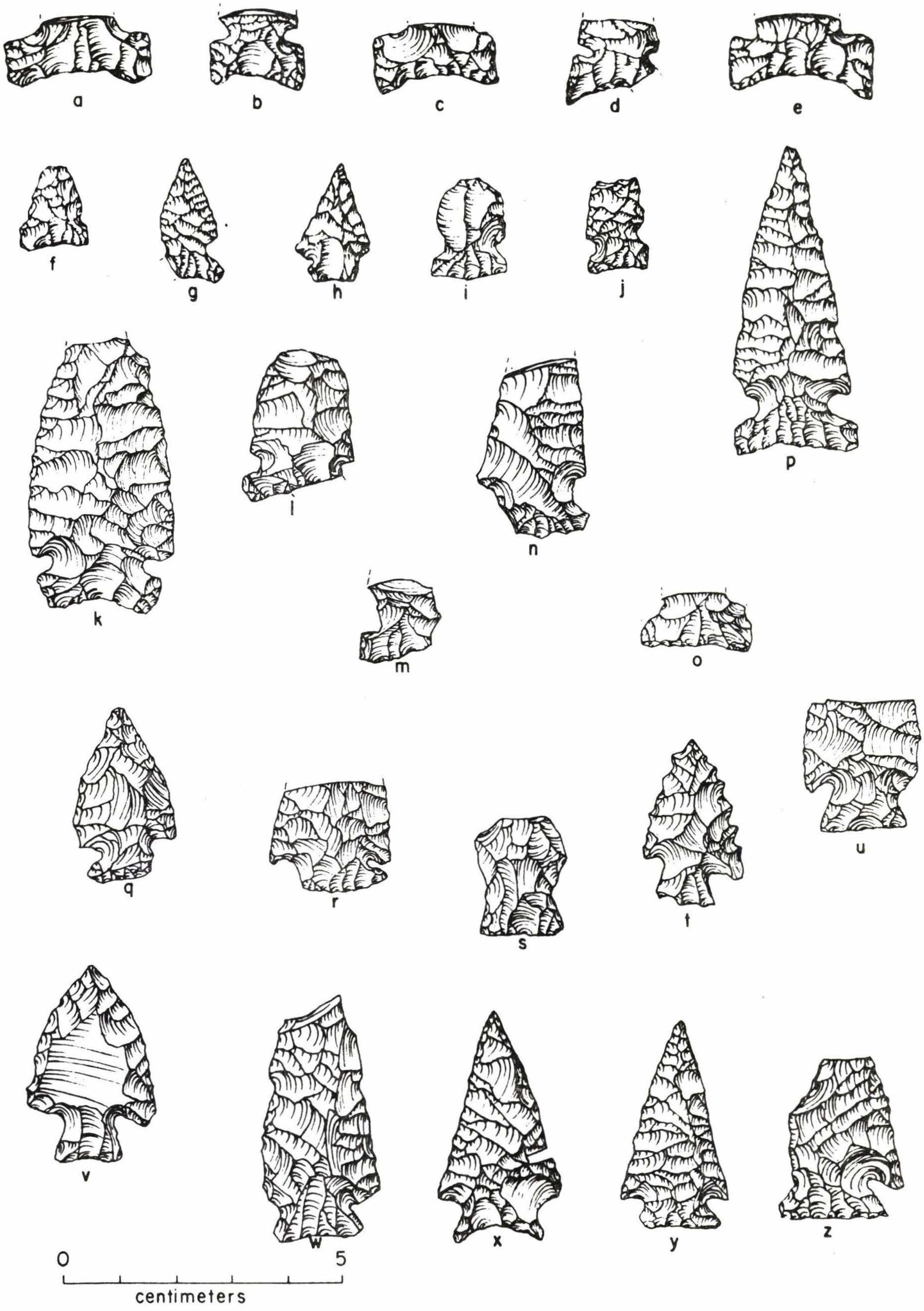


Fig. 12 Projectile points: Sheepeater. a-e, Sidenotched points Type 1; f-j, Sidenotched points Type 2; k-p, Sidenotched points Type 3; q-r, Miscellaneous sidenotched points; s-v, corner notched points Type 1; w-z, corner notched points Type 2. Point x has been cut for obsidian hydration dating.

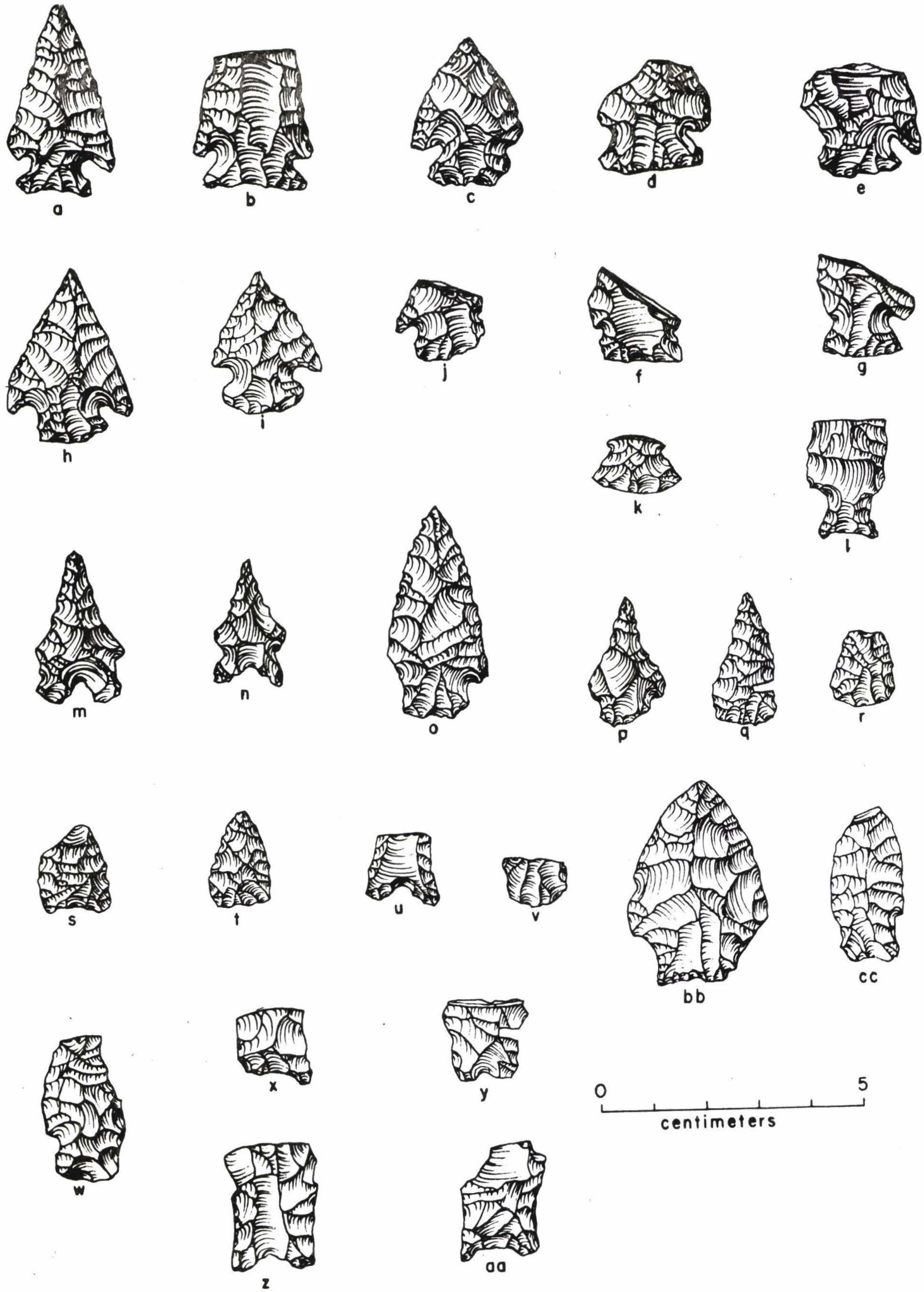


Fig. 13 Projectile Points: Sheepeater. a-e, Corner notched points Type 2; f-k, Corner notched points Type 4; l, corner notched points Type 5; m-p, Elko-eared points; q-v, Triangular points; w-y, small stemmed points; z-aa, stem indented points; bb-cc, squat stemmed points.

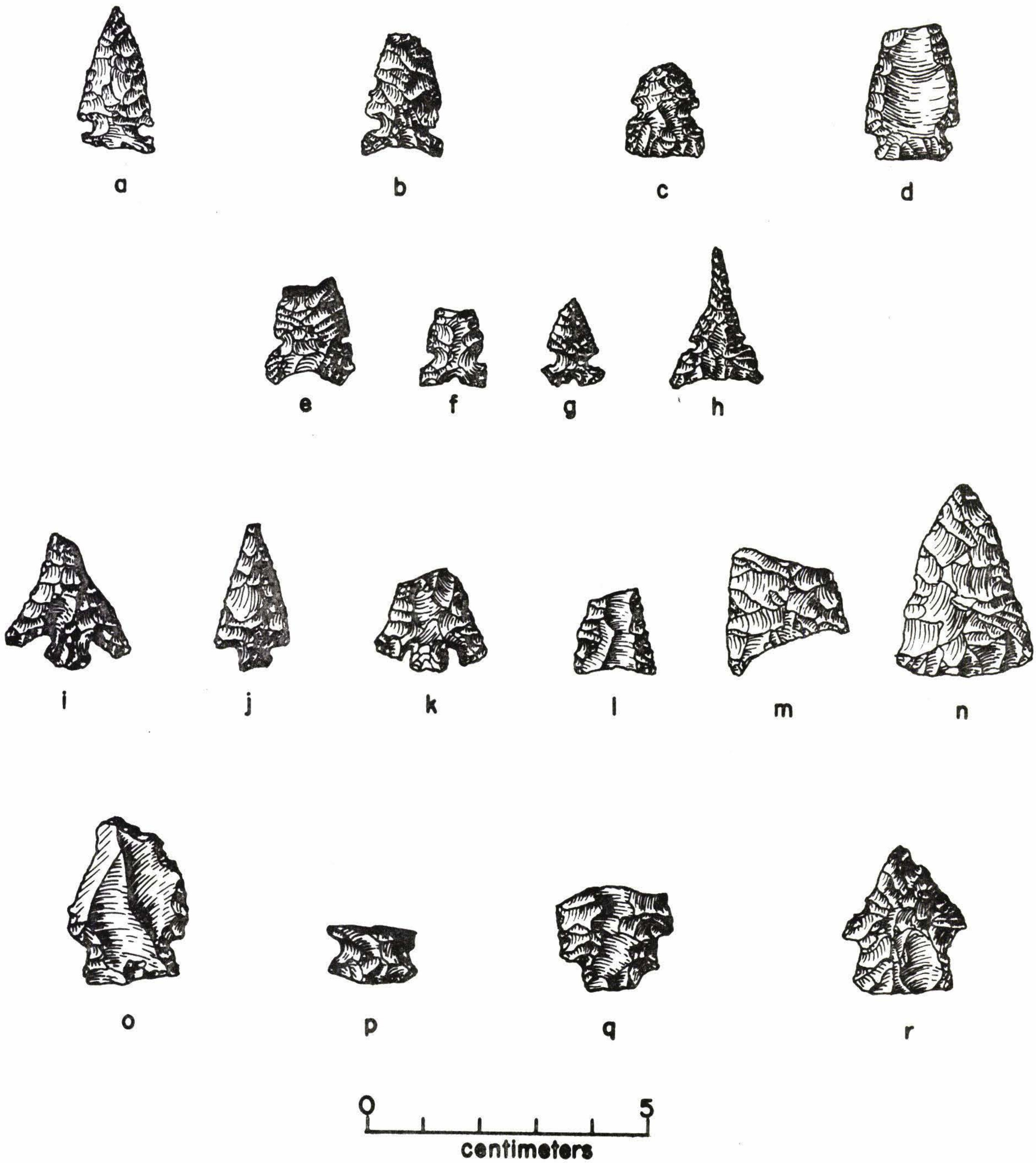
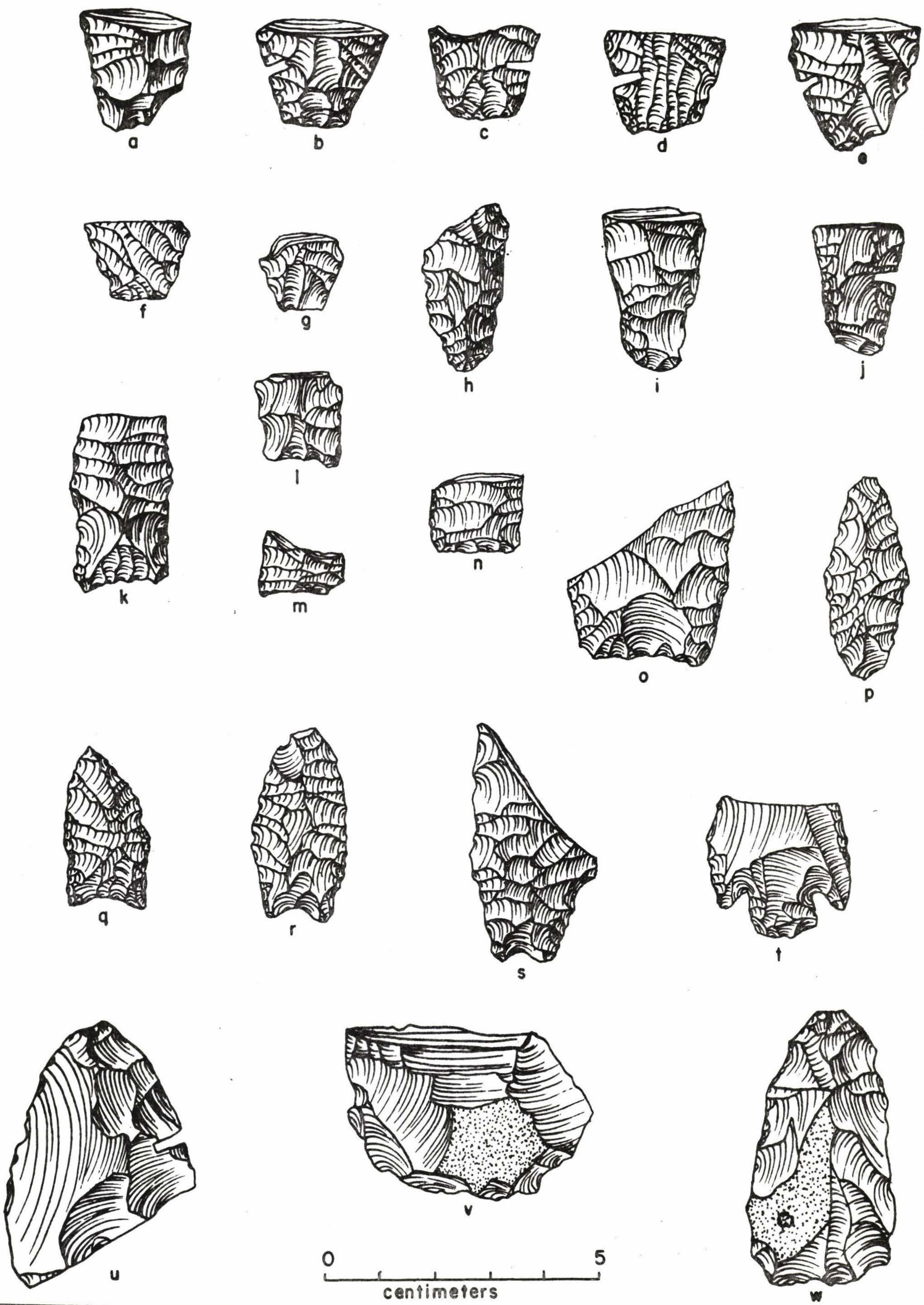


Fig. 14 Projectile Points: Red Fish Overhang. a, b, e-h, Side notched points Type 2; o,p, Side notched points Type 4; c,d, Side notched points Type 5; i, Corner notched points Type 1; j, Corner notched points Type 3; k, Basal notched point; l-n, triangular points; q-r, squat stemmed points.

Fig. 15 Projectile Points and Roughouts: Sheepeater Battleground.

a-g	Narrow base lanceolate points	Type 1
h-j	Narrow base lanceolate points	Type 2
k-m	Square base lanceolate points	
o	Large lanceolate point	
p	Bipointed point	
q	Concave base lanceolate	Type 1
r	Concave base lanceolate	Type 2
s	Concave base lanceolate	Type 3
t	Miscellaneous projectile points	
u-w	Roughouts	

Points b, d, e, and j have been cut for obsidian hydration dating.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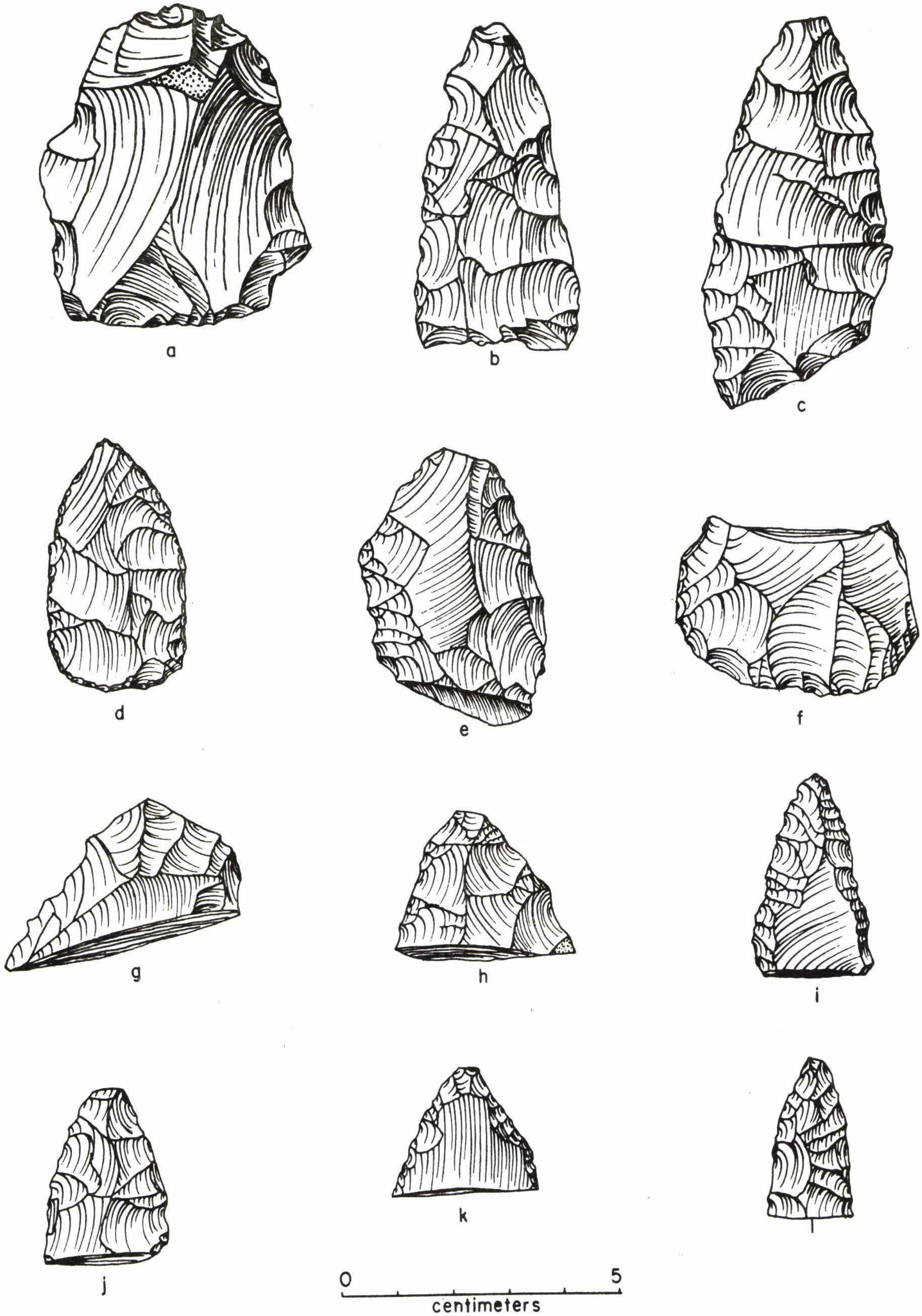

Fig. 16 Roughouts, Blanks and Preforms: Sheepeater.
a, Roughout; b-g, Blanks; h-l, Preforms.

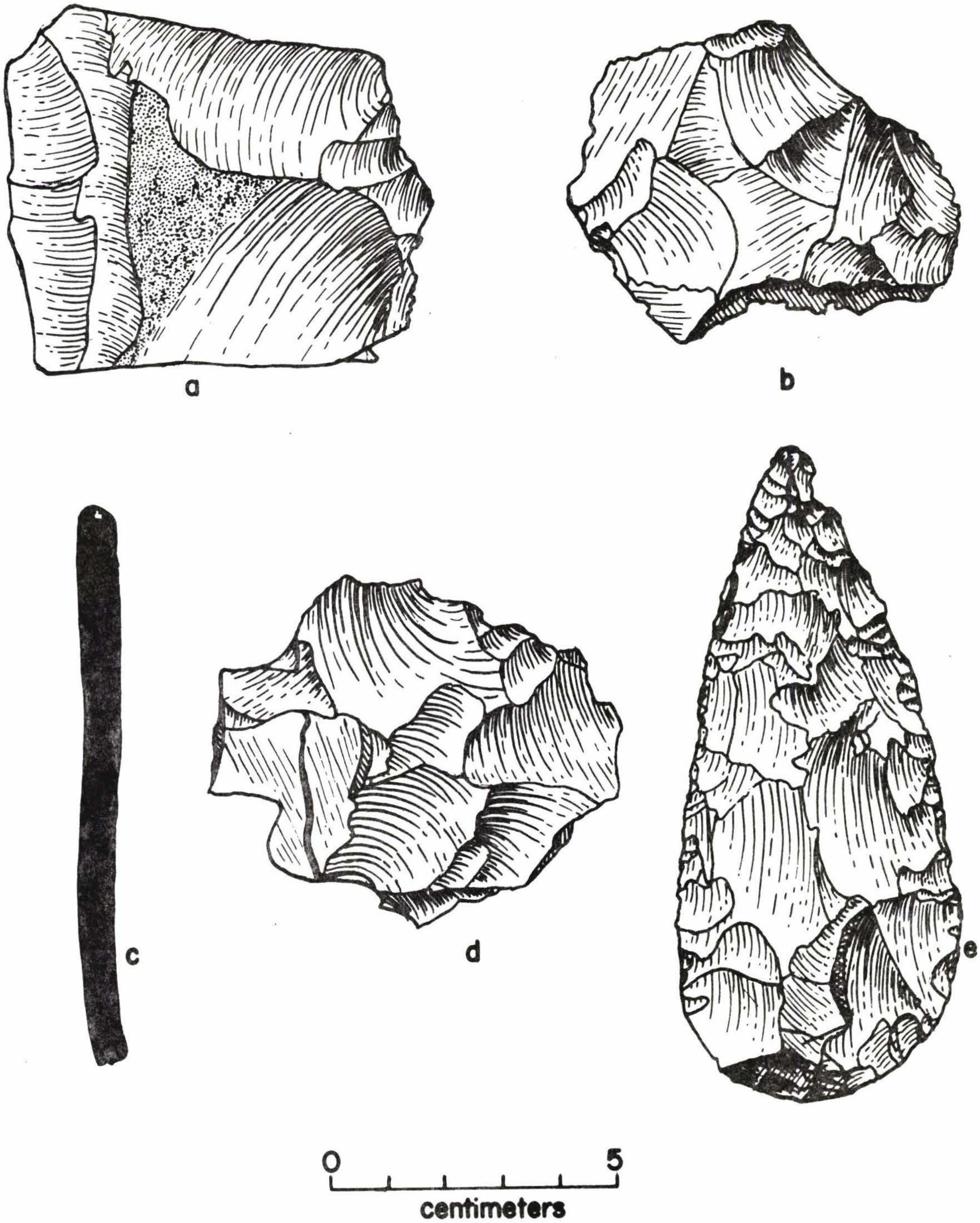

Fig. 17 Roughouts, Core, Knife, Pottery: Red Fish Overhang.
a-b, Roughouts; c, Pottery; d, Core; e, Knife.

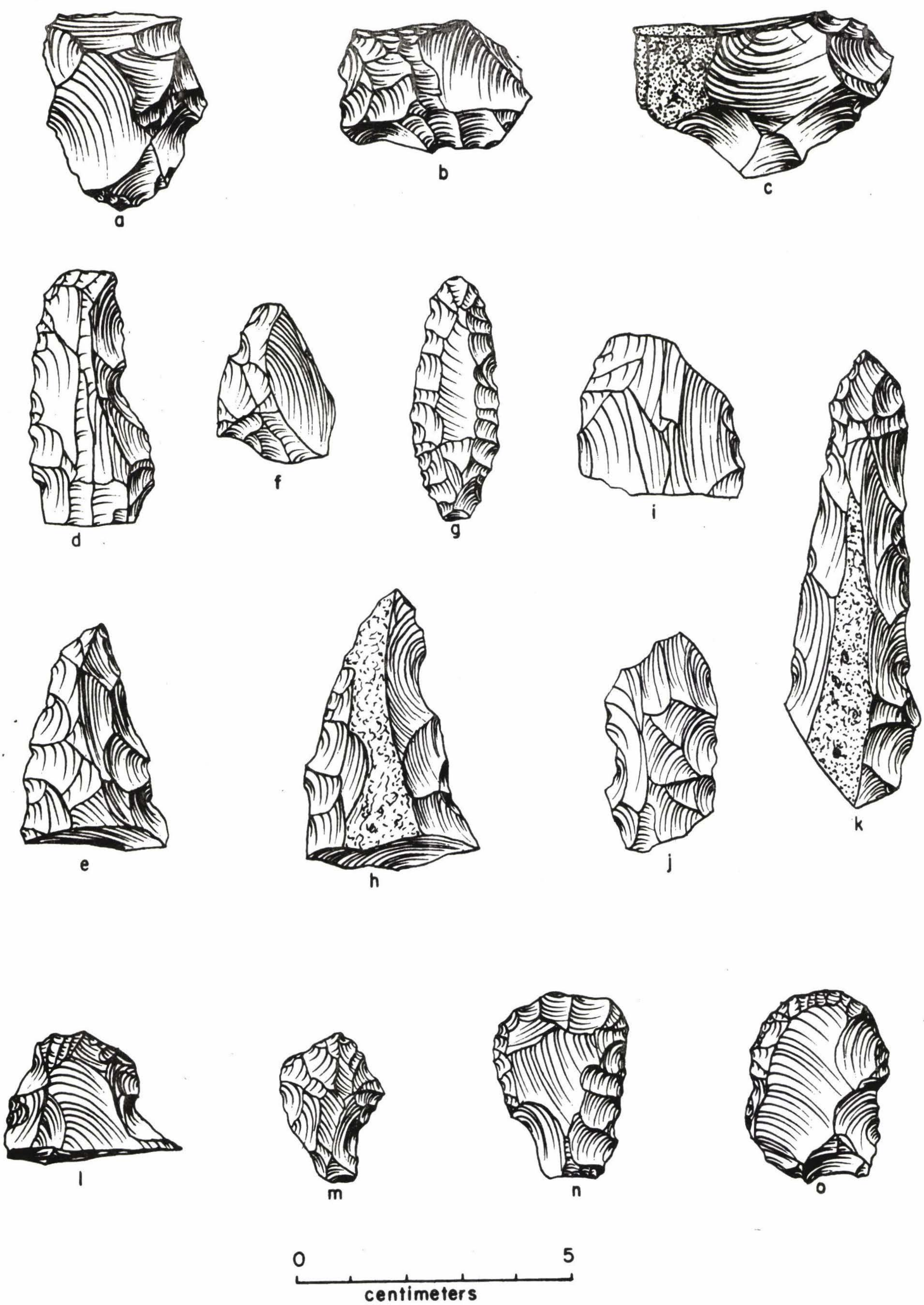

Fig. 18 Core Remnants, Midvale Elongates, Scrapers; Sheepeater. a-c, core remnants; d-i, Midvale elongates; j-k, Midvale elongates (from the Midvale site); l-o, scrapers.

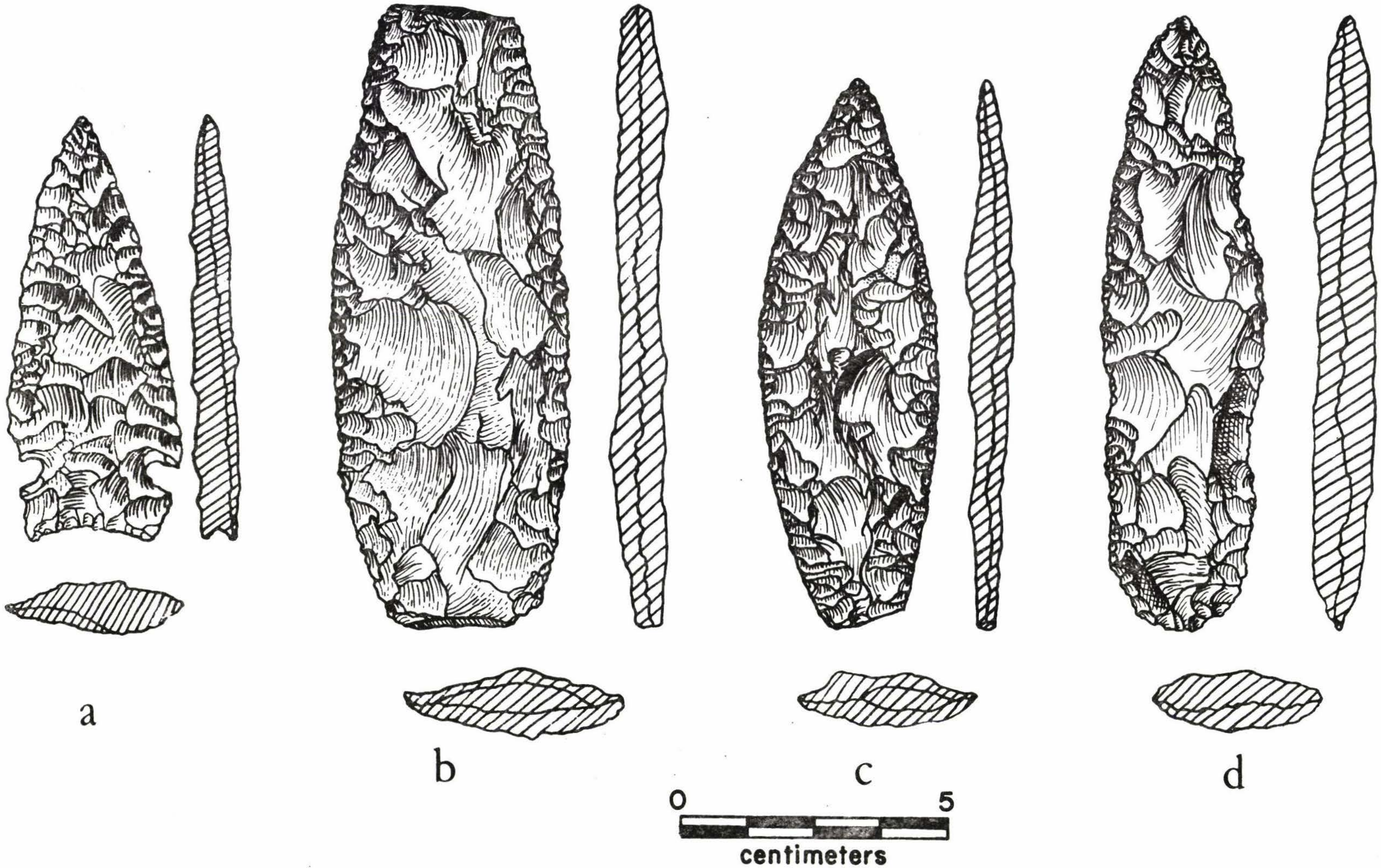

Fig. 19 Knives: Sheepeater.

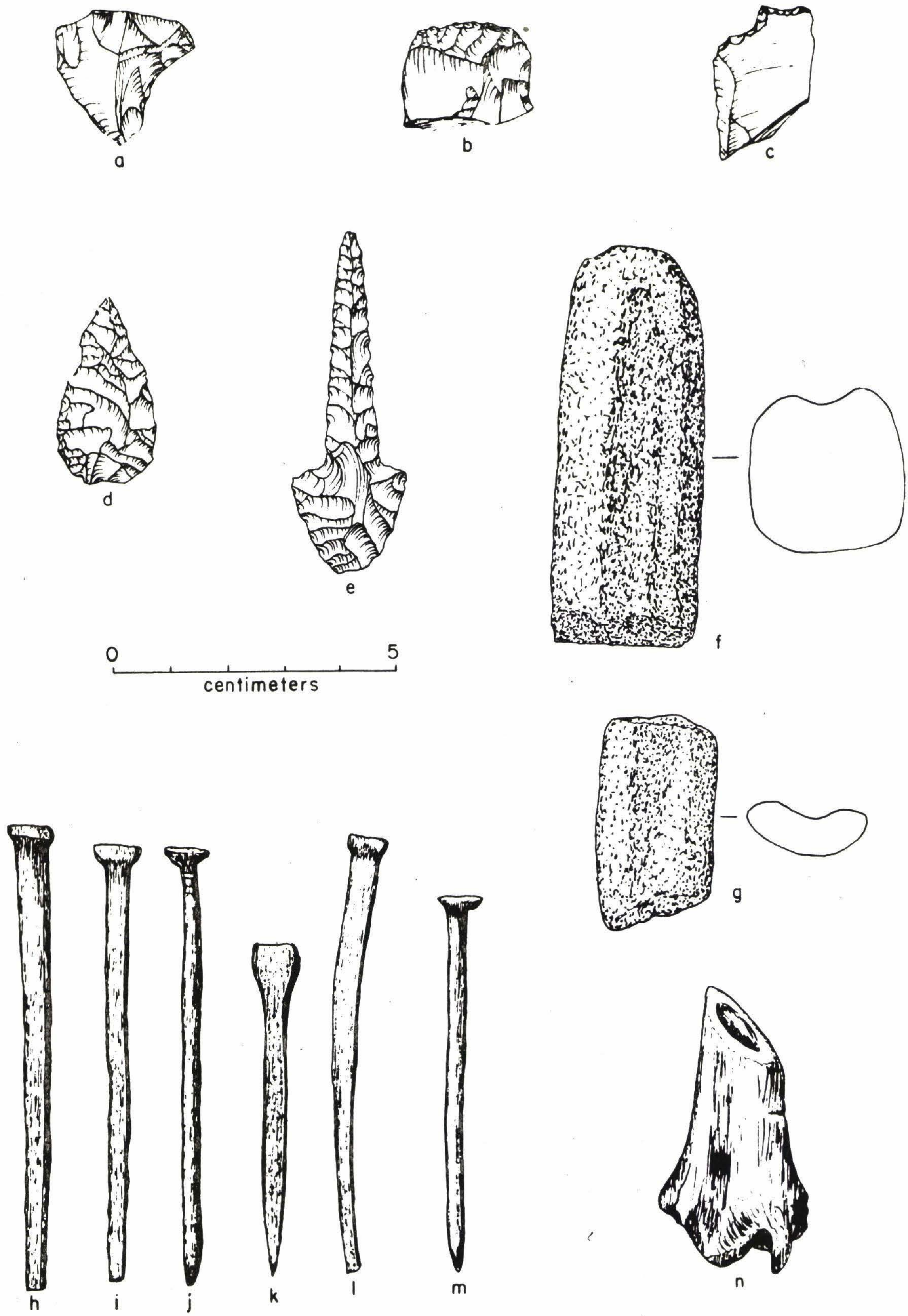

Fig. 20 Small Tools: Sheepeater. a, spokeshave; b-c, utilized hinge fractured flakes; d, graver; e, perforator; f-g, awl sharpener; h-m, nails; n, bone tool.

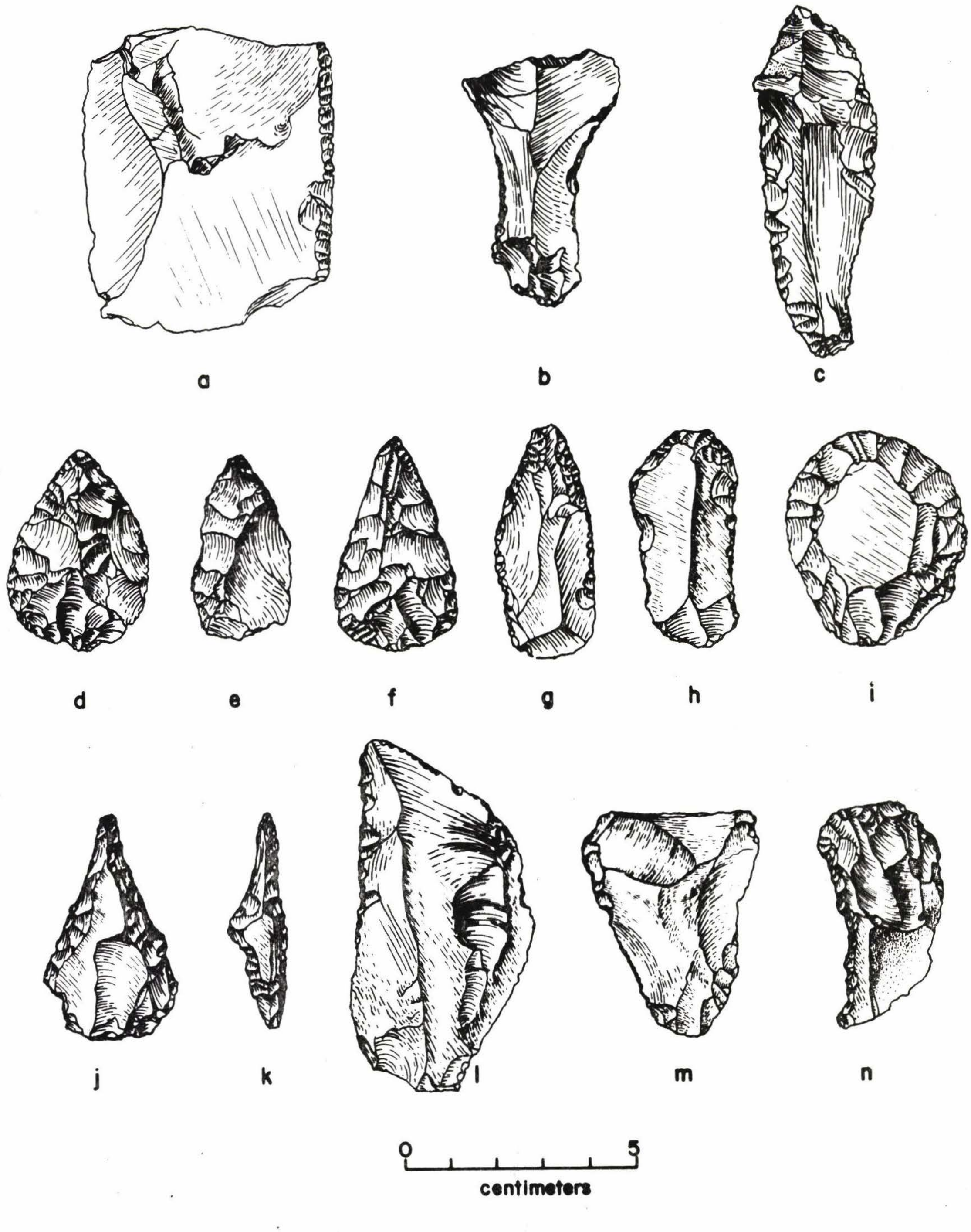

Fig. 21 Preforms and Small Tools: Red Fish Overhang. a-c, retouched flakes; d-f, preforms; h-i, scrapers; j, graver; k, perforator; l-n, retouched flakes.

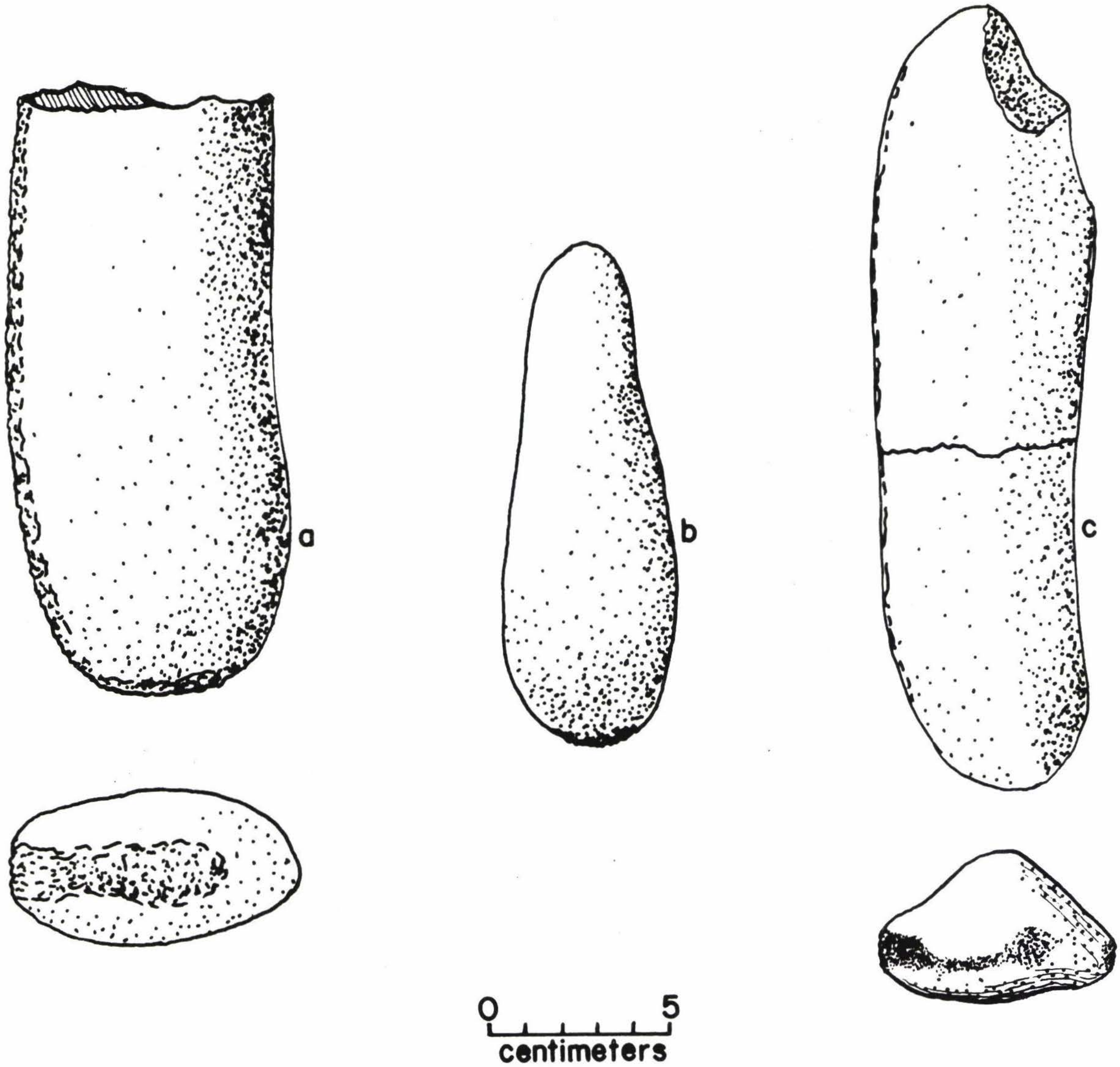

Fig. 22 Cobble tools: Red Fish Overhang.

SHEEPEATER

	Obsidian		Basalt		Chert		Ignimbrite		Jasper		Misc.		
Level	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Total
1	422	46.61	168	18.36	233	25.46	9	.98	16	1.74	67	7.32	915
2	749	45.37	367	22.21	362	21.91	7	.42	30	1.81	137	8.29	1652
3	652	44.41	382	26.08	328	22.34	5	.34	13	.88	87	5.92	1468
4	629	47.61	364	27.55	239	18.09	6	.45	25	1.89	58	4.39	1321
5	257	45.89	145	25.89	111	19.82	2	.35	8	1.42	37	6.60	560
6	227	53.16	113	26.46	68	15.92	-	-	1	.32	18	4.21	427
7	14	16.86	35	42.16	25	30.12	-	-	-	-	9	10.84	83
8	20	47.67	14	33.33	6	14.28	1	2.38	1	2.38	-	-	42
9	10	83.33	-	-	2	16.66	-	-	-	-	-	-	-
Total.	2980		1589		1374		30		94		413		6480

RED FISH OVERHANG

Layers	No.	%	No.	%	No.	%	No.	%	No.	%	Total
1-3	175	20.03	24	2.78	509	59.04	96	11.13	58	6.72	982

Fig. 23 Percent frequencies of raw material: Sheepeater and Red Fish Overhang.

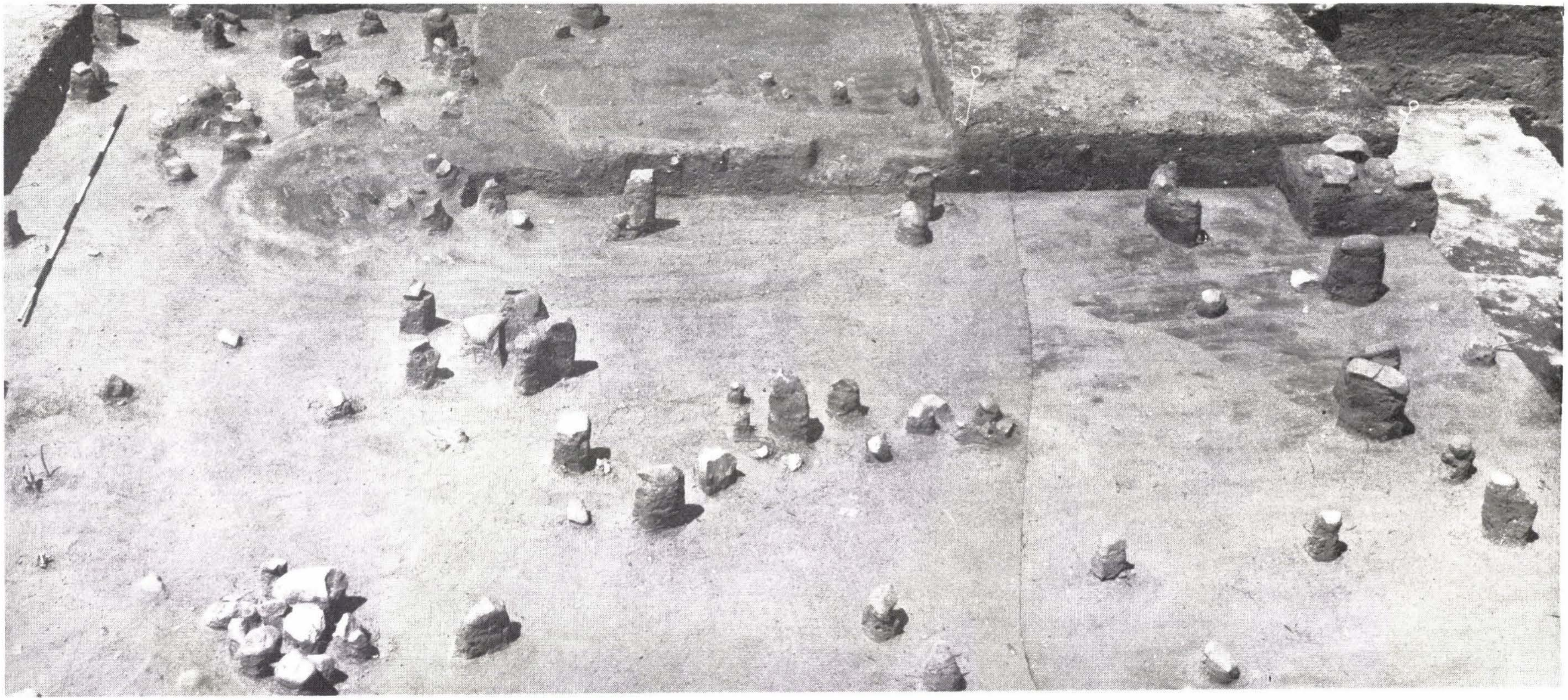

Fig. 24 Hearth and Fire Cracked Rock: Sheepeater Site.

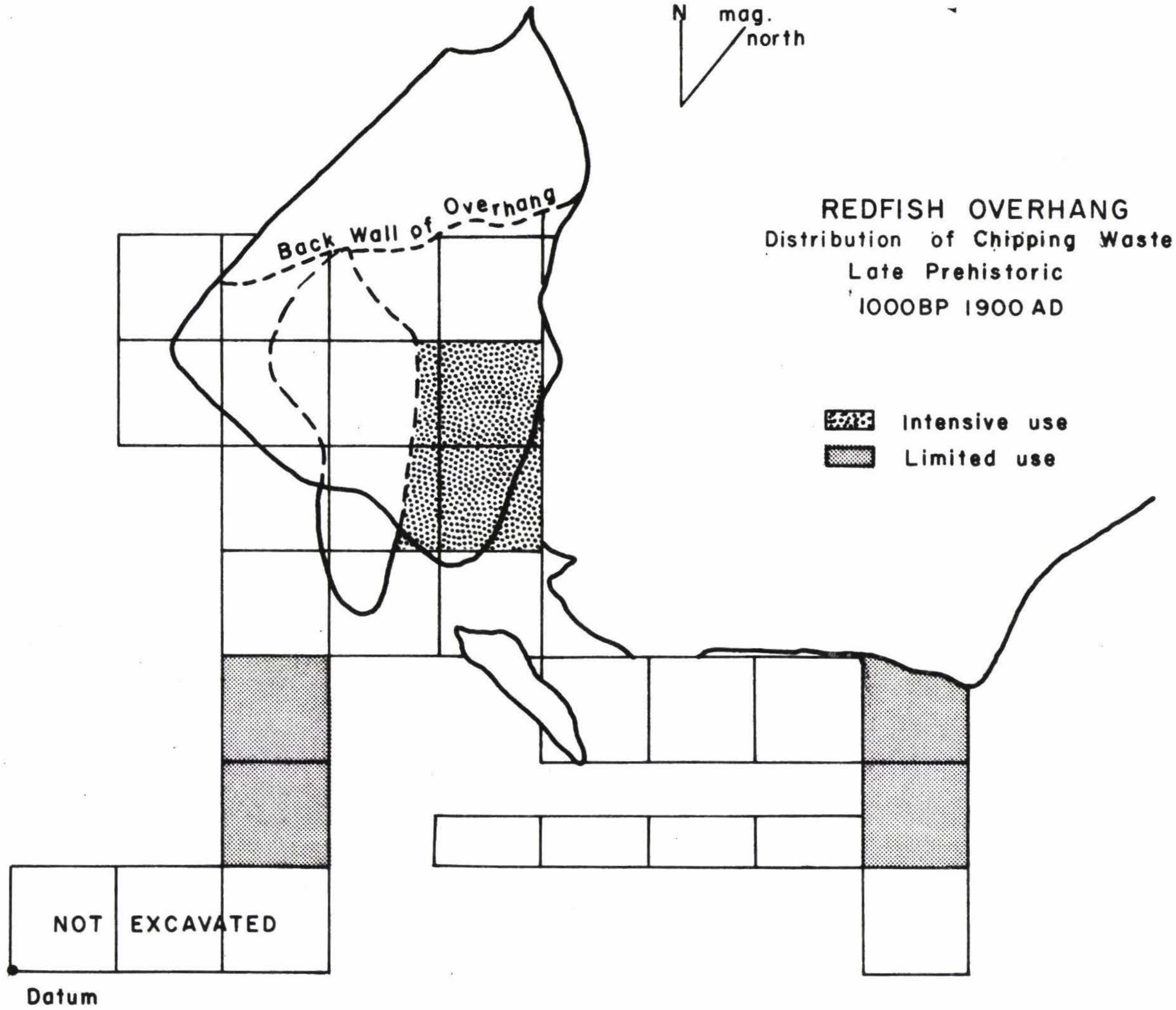

Fig. 25 Distribution of chipping waste: Red Fish Overhang (After Sargent 1973).

SUGGESTED DATES IN YEARS BEFORE PRESENT

SHEEPEATER (10CR202)

Level	Typological X-Correlations	MICRONS/	"Years B.P."
1	A.D. 1800	1.50	4210.52
2	A.D. 1000	1.40	3929.87
3	1000 B.C.	2.27	6377.93
		2.50	7017.54
4	1500-2000 B.C.	2.60	7298.25
		3.32	9319.36
5	-	1.45	4070.17
		3.09	8673.69
6	5000 B.C.	2.88	8084.21

REDFISH OVERHANG (10CR201)

MICRONS/	"Years B.P."	
		C_{14} Date 670$\pm$130 B.P. (WSU 1410, 1410 B)
1.66	4659.70	
1.71	4800.05	
2.06	5782.52	
3.37		
3.79		
3.71		HASKETT MATERIAL CACHE
3.15		
3.51		C_{14} Date 9680$\pm$300 B.P. (WSU 1280, 1280A)
4.93	Point Mid-Section	

Fig. 26 Suggested Dates: Sheepeater and Red Fish Overhang

Salmon District BLM Archeological Sites

248 Total Sites

RIVER VALLEY # OF SITES # PER MILE	ROCKSHELTERS AND CAVES 53 SITES	21%	OPEN CAMPS WITH FEATURES 18 SITES	7%	OPEN CAMPS WITHOUT FEATURES 187 SITES	75%	SPRINGS 48 SITES	19%	QUARRIES 5 SITES	2%
BIG LOST 35 SITES 1 PER MILE	10	29%	0	0%	26	74%	13	37%	0	0%
LITTLE LOST 10 SITES 1 PER 5 MILES	7	70%	1	10%	2	20%	1	10%	0	0%
LEMHI 37 SITES 1 PER 2 MILES	12	32%	0	0%	27	75%	6	16%	2	5%
PAHSIMEROI 47 SITES 1 PER MILE	9	19%	1	2%	38	81%	6	13%	1	2%
SALMON 119 SITES 1 EVERY 1/2 MILE	15	13%	16	13%	94	79%	22	18%	2	2%

Fig. 27 Salmon District BLM archaeological sites (after Swanson et. al. 1969).

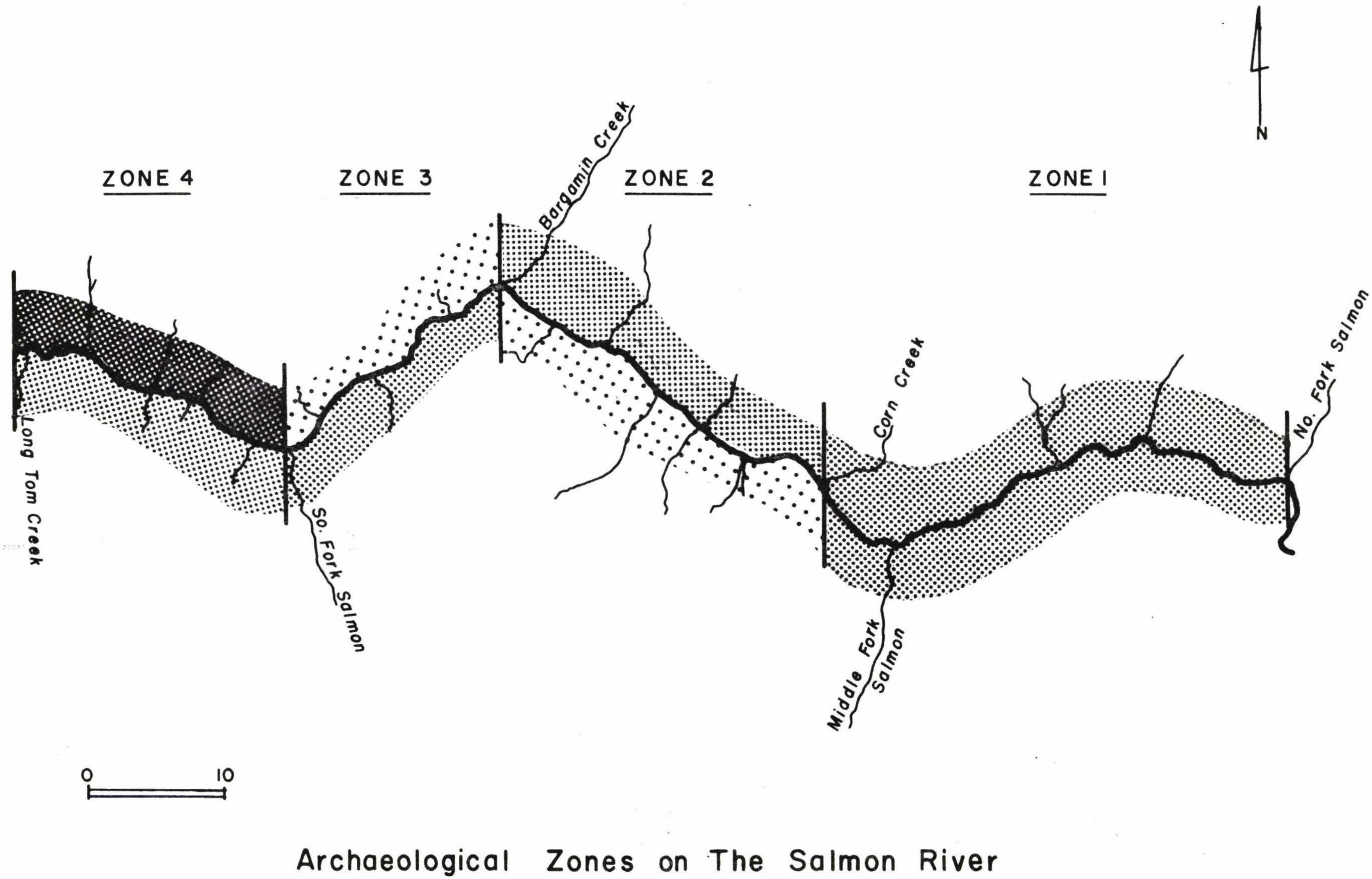

Fig. 28 Archeological zones on the Salmon River (after Harrison 1971).

APPENDIX I: OBSIDIAN SOURCE ANALYSIS

In the fall of 1972, Dr. Charles Nelson of the University of Massachusetts contacted B. Robert Butler and asked him for assistance in obtaining obsidian samples from sites and sources in the Northwest. Professor Butler enlisted the aid of the author in gathering these data. Samples from a number of sites and sources including Sheepeater were sent to Dr. Nelson (Fig. 1). The samples from Sheepeater were randomly chosen from each 15 cm level of the site.

The analysis entailed determining the relative amounts of rubidium, strontium and zirconium in source material and comparing them with relative amounts of these elements in samples of material collected from sites. The results of the analysis of the Sheepeater obsidian are not entirely conclusive for two reasons. First, not all the known sources in the vicinity have been sampled; second, the number of analyzed samples from known sources is still limited. A series of confirming samples (approximately 20 per source) is needed to establish the limits of variation in each source. Despite these limitations, the results of the analysis of the Sheepeater material are of interest. The analysis indicated the probable source of nearly all the Sheepeater obsidian is Timber Butte, located in Western Idaho six miles southeast of the junction of the North and South Forks of the Payette River. There are other sources represented in the Sheepeater samples but they constitute only minor fractions (Fig. 2) (Dr. Charles Nelson, personal communication, April 1973).

At the present time, the obsidian samples analyzed by Dr. Nelson have not been time vectored. However, it is possible to suggest, based on the consistency of the frequency with which obsidian was recovered in the excavation of Sheepeater, that there was a consistency in the exploitation of the Timber Butte source. From Level 6 through 1 the mean frequency for obsidian debitage is 47.25% with a standard deviation of only 6.87%. Taken alone, this is considered to indicate either a constant exploitation of a number of sources or possibly seven mixing of the deposits. However, raw materials exhibit a similar stable pattern. Basalt, for instance, averages 24.63% with a standard deviation of 4.96% through the same levels; other types of raw material (Fig. 23) follow a similar pattern. Presently, only the obsidian sources have even been tentatively identified, but the stable pattern of utilization of basalt and other raw materials suggests that possibly the same pattern would be found in other raw material if the sources were known.

Archeological Sites:

Weston Canyon Rockshelter
(Delisio 1970, Miller 1972)

Rockcreek
(Green 1972)

Sheepeater Battleground

Malad Hill
(Swanson and Dayley 1968)

Sources of Obsidian or Ignimbrite:

West Camas Creek, Idaho Obsidian

Rock Creek, Idaho Ignimbrite

Garden Creek Gap, Idaho Obsidian

Browns Bench, Idaho Ignimbrite

Glass Buttes, Oregon Obsidian

Big Southern Butte, Idaho Obsidian

Obsidian Cliff, Yellowstone N.P. Obsidian

Timber Butte, Idaho Obsidian

American Falls, Idaho Ignimbrite

Spring Creek, Idaho Ignimbrite

Three Creek, Idaho Ignimbrite

Fig. 1 List of sites and obsidian sources submitted for analysis.

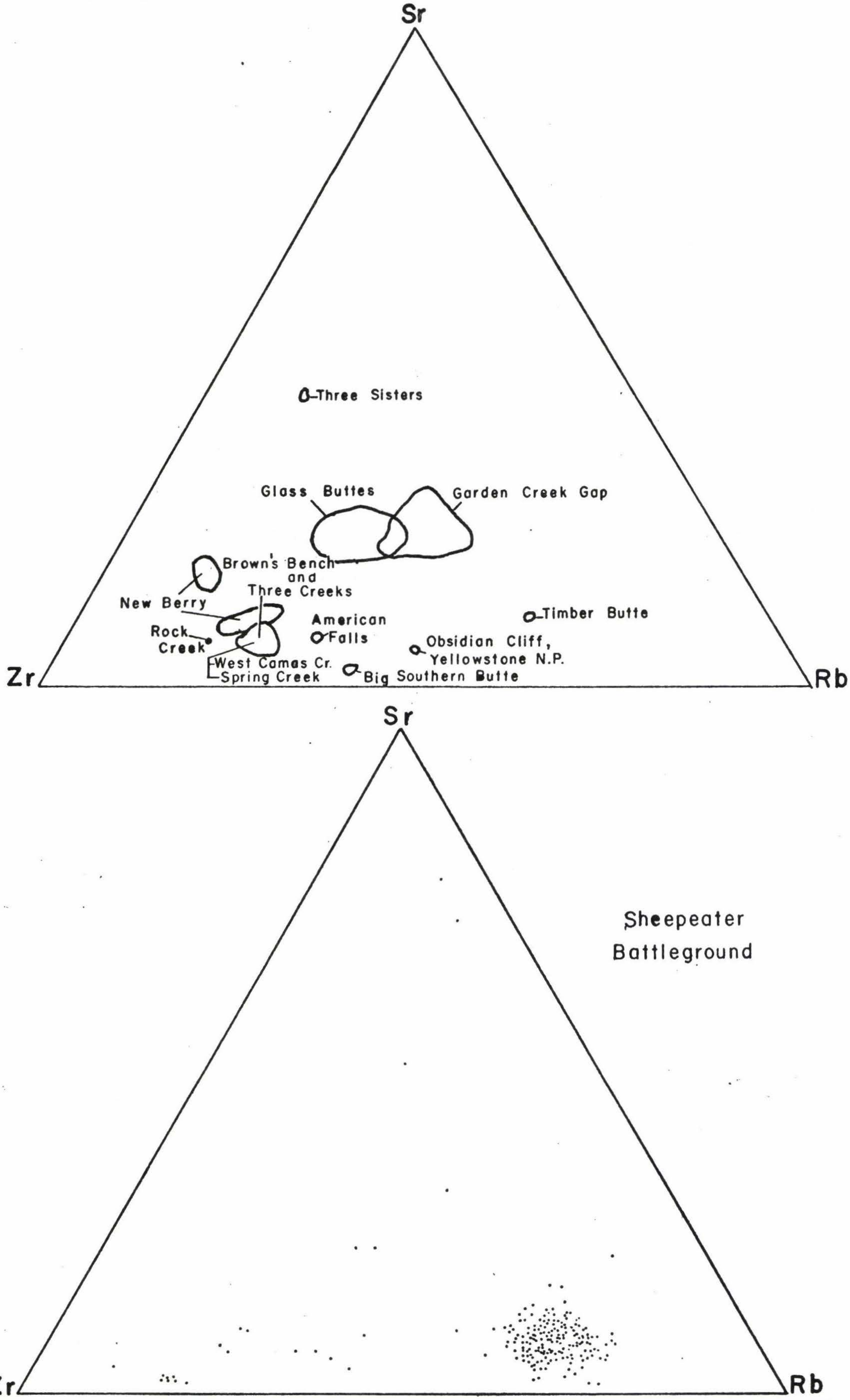

Fig. 2 Three pole graph showing the relative frequencies of strontium, rubidium, and zirconium for obsidian sources (upper) and the Sheepeater Battleground site (lower).

SHEEPEATER

	Obsidian		Basalt		Chert		Ignimbrite		Jasper		Misc.		
Level	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Total
1	422	46.61	168	18.36	233	25.46	9	.98	16	1.74	67	7.32	915
2	749	45.37	367	22.21	362	21.91	7	.42	30	1.81	137	8.29	1652
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6	227	53.16	113	26.46	68	15.92	-	-	1	.32	18	4.21	427
7	14	16.86	35	42.16	25	30.12	-	-	-	-	9	10.84	83
8	20	47.67	14	33.33	6	14.28	1	2.38	1	2.38	-	-	42
9	10	83.33	-	-	2	16.66	-	-	-	-	-	-	-
Total	2980		1589		1374		30		94		413		6480

RED FISH OVERHANG

Layers	No.	%	No.	%	No.	%	No.	%	No.	%	Total
1-3	175	20.03	24	2.78	509	59.04	96	11.13	58	6.72	982

Fig. 3 Percent frequencies of raw material: Sheepeater Battleground and Red Fish Overhang.

APPENDIX II: OBSIDIAN HYDRATION

The foregoing chapters point out the analysis of the cultural stratigraphy of Sheepeater was undertaken in order to suggest a tentative chronology, propose cultural relationships, and describe prehistoric site usage. Because of the possibility of mixing in the deposits and the relatively small sample of artifacts that could be used to cross-date the various levels, the suggested chronology is somewhat weak. In an effort to firm up the chronology, 10 obsidian tools and flakes from the Sheepeater, and a like number from the Red Fish Overhang were selected for obsidian hydration analysis. The strategy was to use the results of the hydration readings together with the radiocarbon dates from the Red Fish Overhang to estimate a rate of hydration which could be used to construct a chronology at Sheepeater.

As this was the first known application of this technique in this area, there was no hint as to what the results of this test would be. In retrospect, the only major error was in not submitting a sufficient number of samples from each level to allow for greater confidence in the results. The 20 samples were submitted to the Pennsylvania Obsidian Dating Laboratory in 1973, but due to technical difficulties only 18 readings were obtained.

The readings in microns for each specimen from both sites are listed in Fig. 1. The chart illustrates two important points: first, the cache of Haskett material from the Red Fish Overhang has a wide range of readings. This indicates that even in contemporaneous specimens stored under identical conditions, the obtained readings incorporate considerable variation. Second, the readings do not fall into a precise sequence with the largest readings always earlier (stratigraphically) than smaller readings. In fact, there is a considerable overlap.

The problem of the wide range in hydration readings from the cache is not easily dismissed. While Michaels (1973) has discussed the problem of constructing a chronology based on hydration readings and C_{14} dates, his suggestion for making corrections when discrepancies occur is to calculate a number of different hydration rates. Calculating the hydration rate at Red Fish Overhang involves first an averaging of the cache readings. The result is a mean micron measurement of 3.5126 with a s.d. of .2545. Based on the radiocarbon date of 9680 $\pm$ 300 B.P. for the cache, this measurement converts to a rate of 2807.0199 years per micron with s.d. of 714.3865 years per micron. Using this rate, the calculated values for the lower levels at Sheepeater fall within the expected range, but as is shown in Fig. 26, the calculated rates for Level 1 and 2 are seemingly too old. If additional obsidian samples and radiocarbon dates were available, an alternate rate could be calculated which might be more satisfactory. Despite the apparent problems with this calculated chronology, it does have an internal consistency which suggests that the Sheepeater chronology derived from cross-dated artifacts is at least plausible. Thus, the suggested date of 7000 B.P. for the initial occupation of Sheepeater is within reason.

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APPENDIX III: THE OLD STANLEY RANGER STATION

The Old Stanley Ranger Station Site is located at the junction of Valley Creek and the main Salmon River along State Highway 93 between the towns of Upper Stanley and Lower Stanley. The site initially was reported by Bowers (1964) and was described as part of a complex of sites which extended along Valley Creek on the south and to the hill just north of the Old Ranger Station and along the bank of the Salmon River (Fig. 1).

In the summer of 1970, the U.S. Forest Service excavated a sewerline trench behind the Old Ranger Station. During the trenching operations, three artifacts were accidentally uncovered. Mr. Bill James, a Forest Service technician, took possession of the artifacts and informed B. Robert Butler of the find. The trenching operations were then halted. Butler arrived shortly thereafter and excavated a large trench across the intact part of the sewerline (B. R. Butler, personal communication, June 1972). No artifacts or other evidence of aboriginal occupation detected; the sewerline operation was resumed.

The following summer, additional excavations were carried out between the Old Ranger Station and the hill behind the station to the north. Two students from the Museum Field School tested the site. Their excavations consisted of one 1 x 2 m test trench and two 2 x 2 m test pits. The pits were dug to about 75 cm where they encountered ground water. The excavations recovered seven flakes and no other artifacts. The main reason for mentioning these excavations is to provide a backdrop for describing the artifacts recovered in the initial Forest Service trenching operations.

The Artifacts

Mr. James has allowed me to examine the three recovered tools at length, for which I am most grateful. They consist of two basalt bifaces and a large chalcedony projectile point or notched knife (Fig. 2a,b,c). The smaller of the bifaces (Fig. 2b) measures 13.5 x 6.0 x 2.2 cm. It is roughly leaf shaped and formed by a series of percussion struck flakes. Step fractures are numerous and the margins of the piece are worn so they appear polished. Likewise, the arrets of many flake scars exhibit some polish or grinding.

The larger basalt biface (Fig. 2a) is thick in cross-section and has one end broken. It measures 16.5 x 8.5 x 5.0 cm. The margins are constricted about halfway between the tips, possibly for hafting purposes. The end which is still intact is heavily worn which suggests this tool may have served as a pick. No wear was observed on the arrets. The broken end exhibits a break described by Crabtree (1972:60) as end shock. End shock is a ". . . transverse fracture due to the stone exceeding its elastic limits. Failure of the material to rebound and recoil before fracture occurs" (1972:60).

The third artifact is a basal-notched leaf shaped projectile point or knife (Fig. 2c). This specimen compares well with Type V projectile points (Fig. 2d-h) as defined in the Midvale Complex (Warren, Wilkinson, and Pavesic 1971:42). This type is described as "Leaf shaped with notches near the base to form an expanding stem. Convex bases with convex to straight edges. Lenticular to plano-convex in cross-section." The specimen from the Old Stanley Ranger Station Site is slightly asymetrical; one edge is nearly straight, the other is convex. The material of the point/knife is made from seam chalcedony. Cortex covers most of the surface of both faces; two series of pressure flakes can be observed on the piece. The first series was used to shape the piece; the second series, which followed an intervening episode of heat treating, is present along only the straight edge. This second set of pressure flakes is short and often stepped off suggesting the heat treating was not entirely successful. The point/knife measures 13.5 x 5.7 x 0.7 cm. The neck width is 2.88 cm.

APPENDIX III: BIBLIOGRAPHY

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Fig. 1 The Old Stanley Ranger Station Site

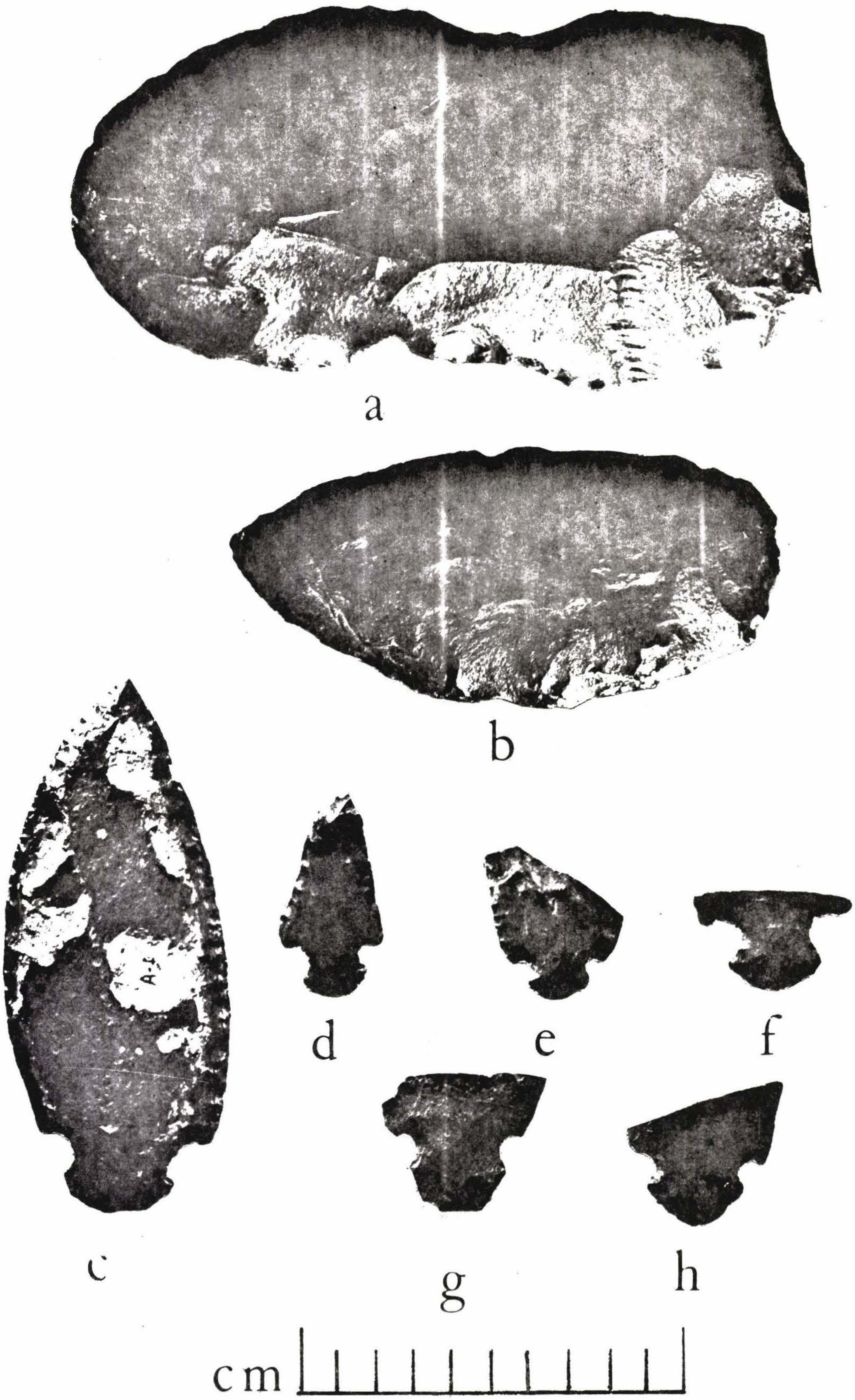
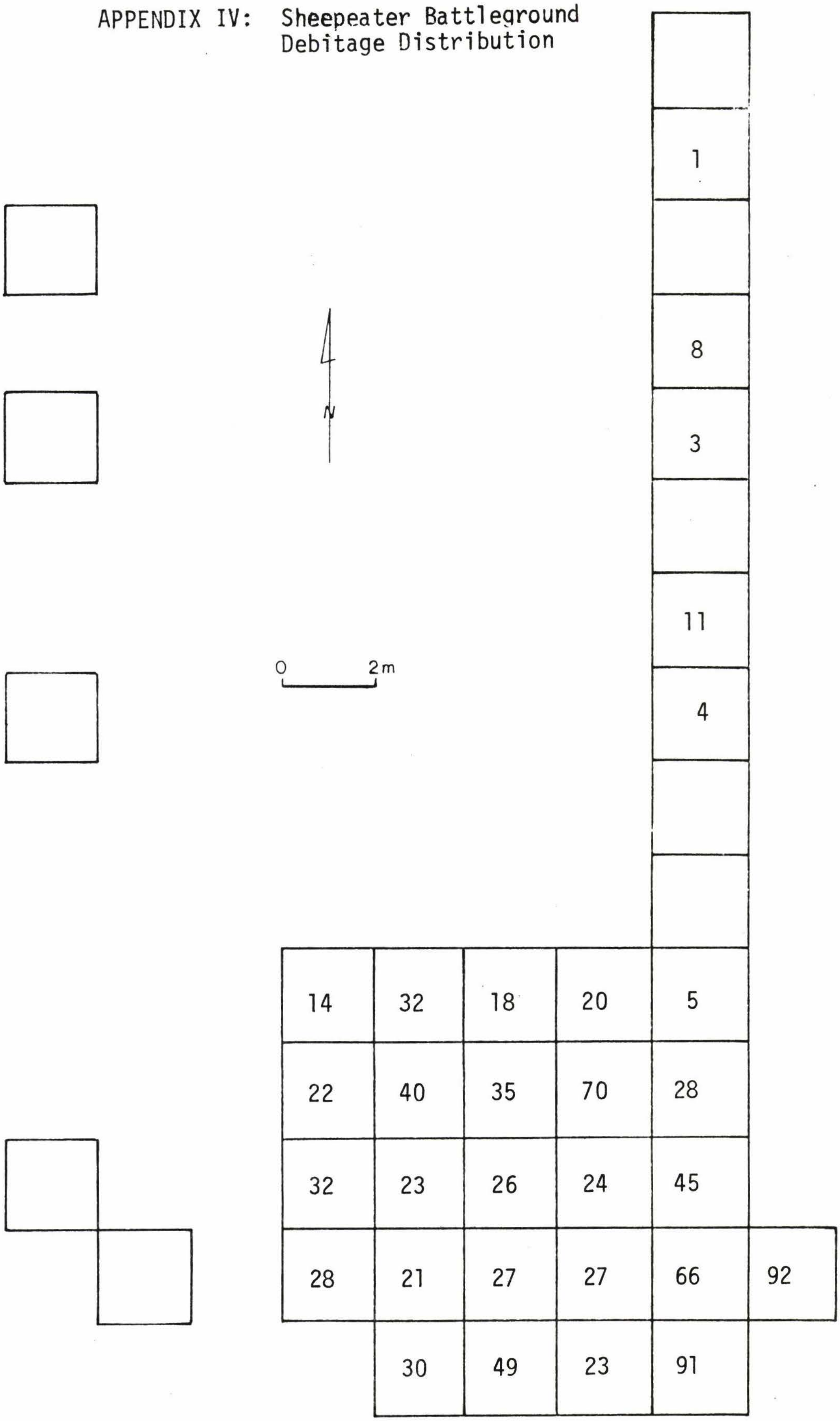


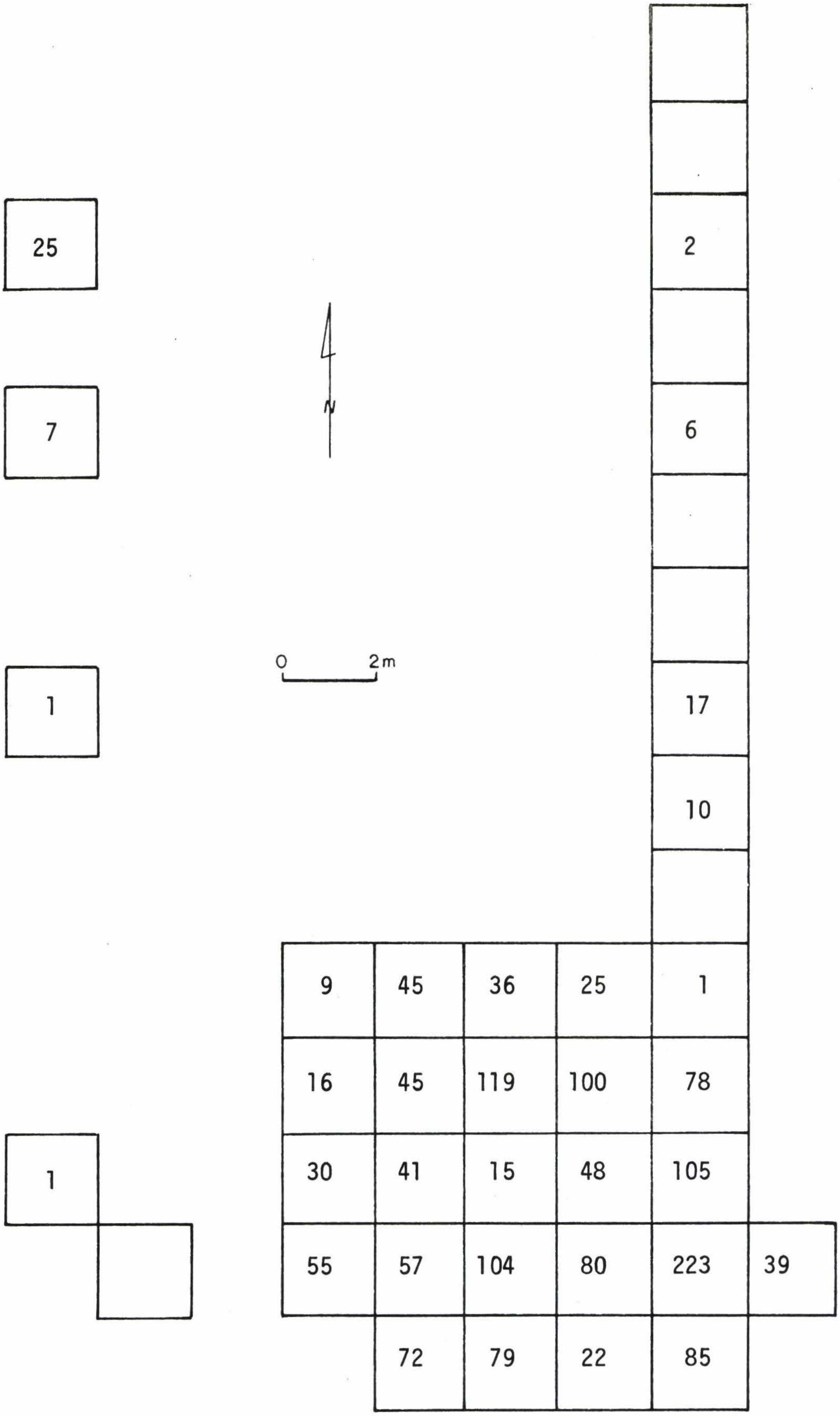
Fig. 2 Old Stanley Ranger Station artifacts, a-c. Midvale type IV points from the Midvale site, d-h.

APPENDIX IV: SHEEPEATER BATTLEGROUND DEBITAGE DISTRIBUTION

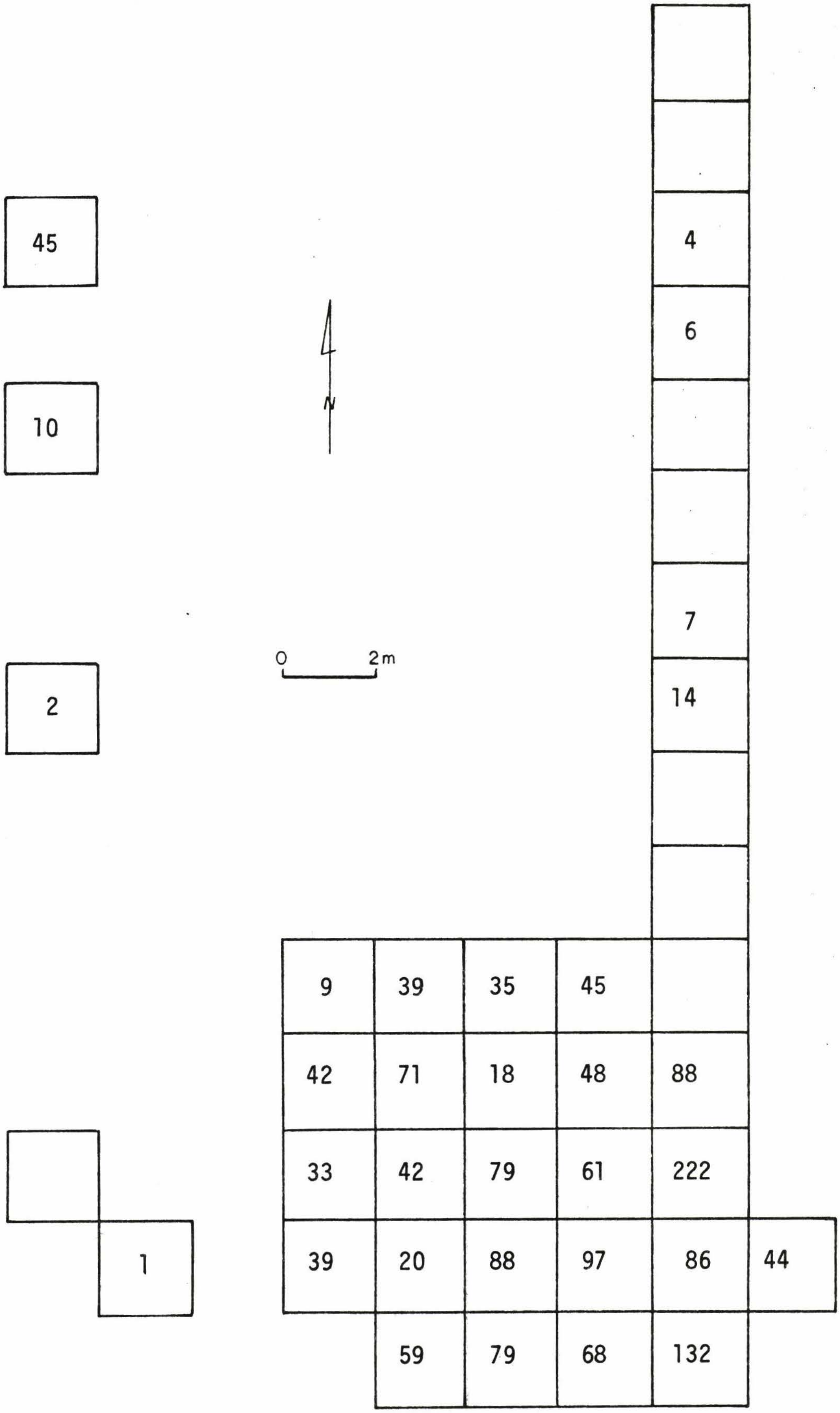
APPENDIX IV: Sheepeater Battleground
Debitage Distribution



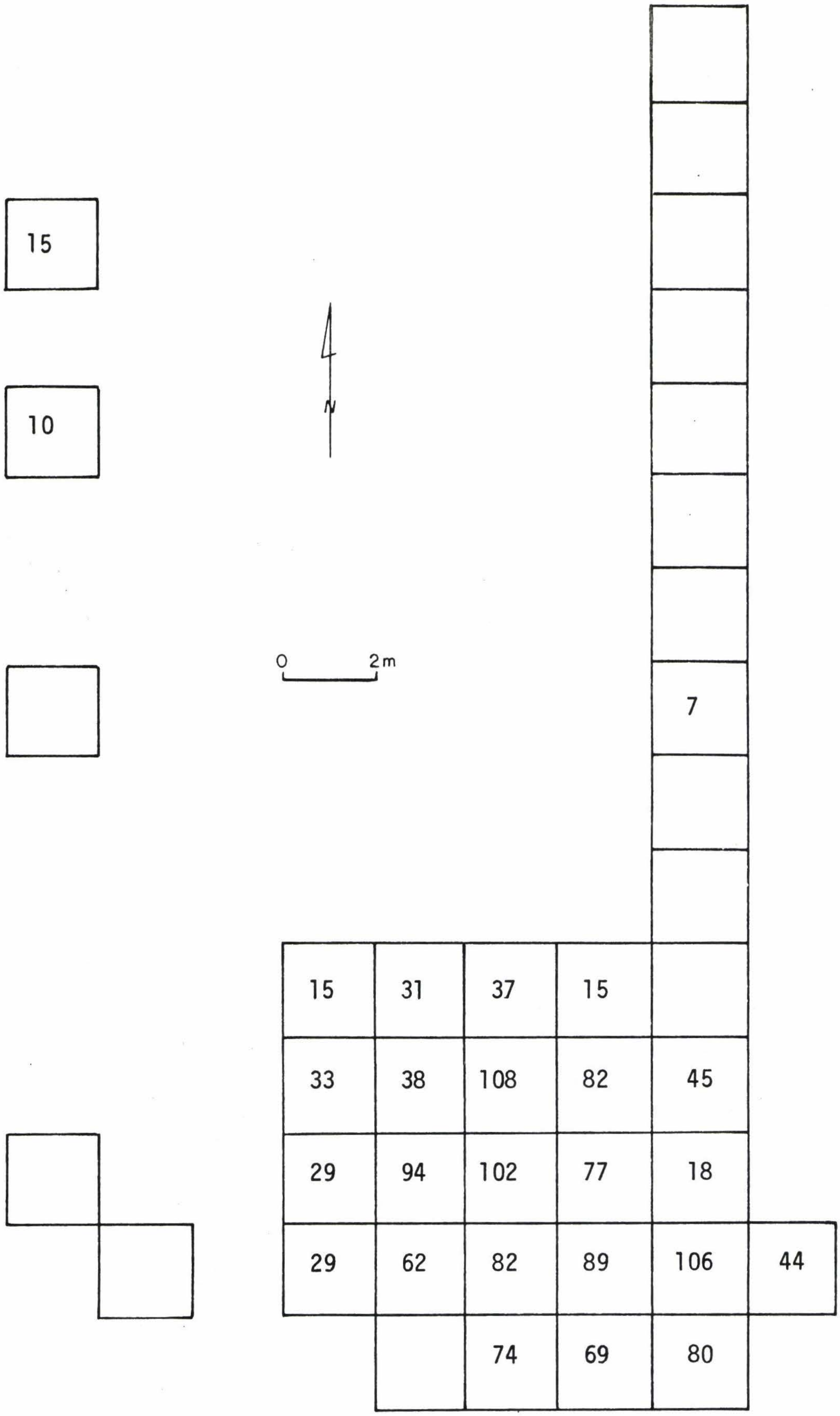
LEVEL 0-15 cm



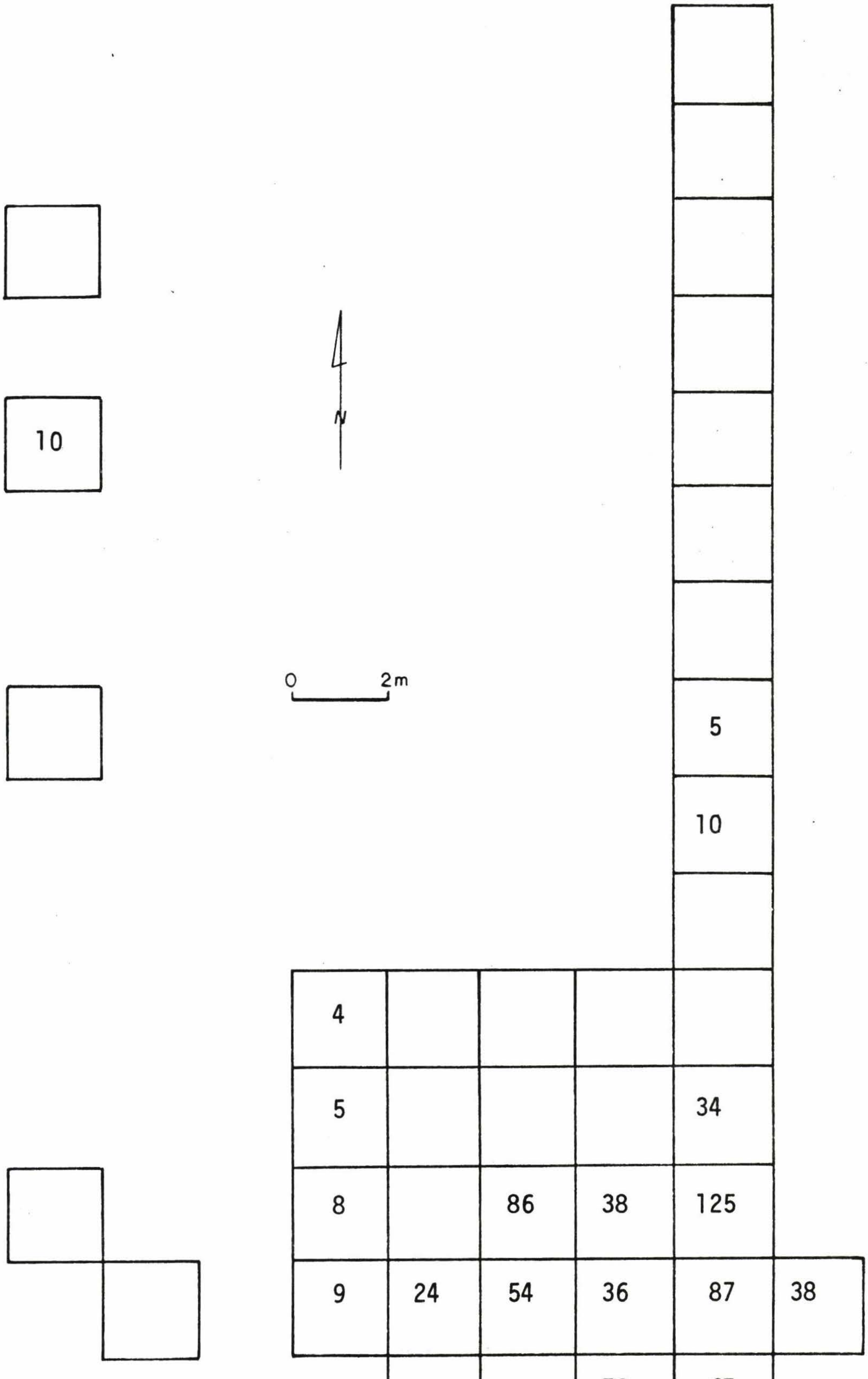
LEVEL 15-30 cm



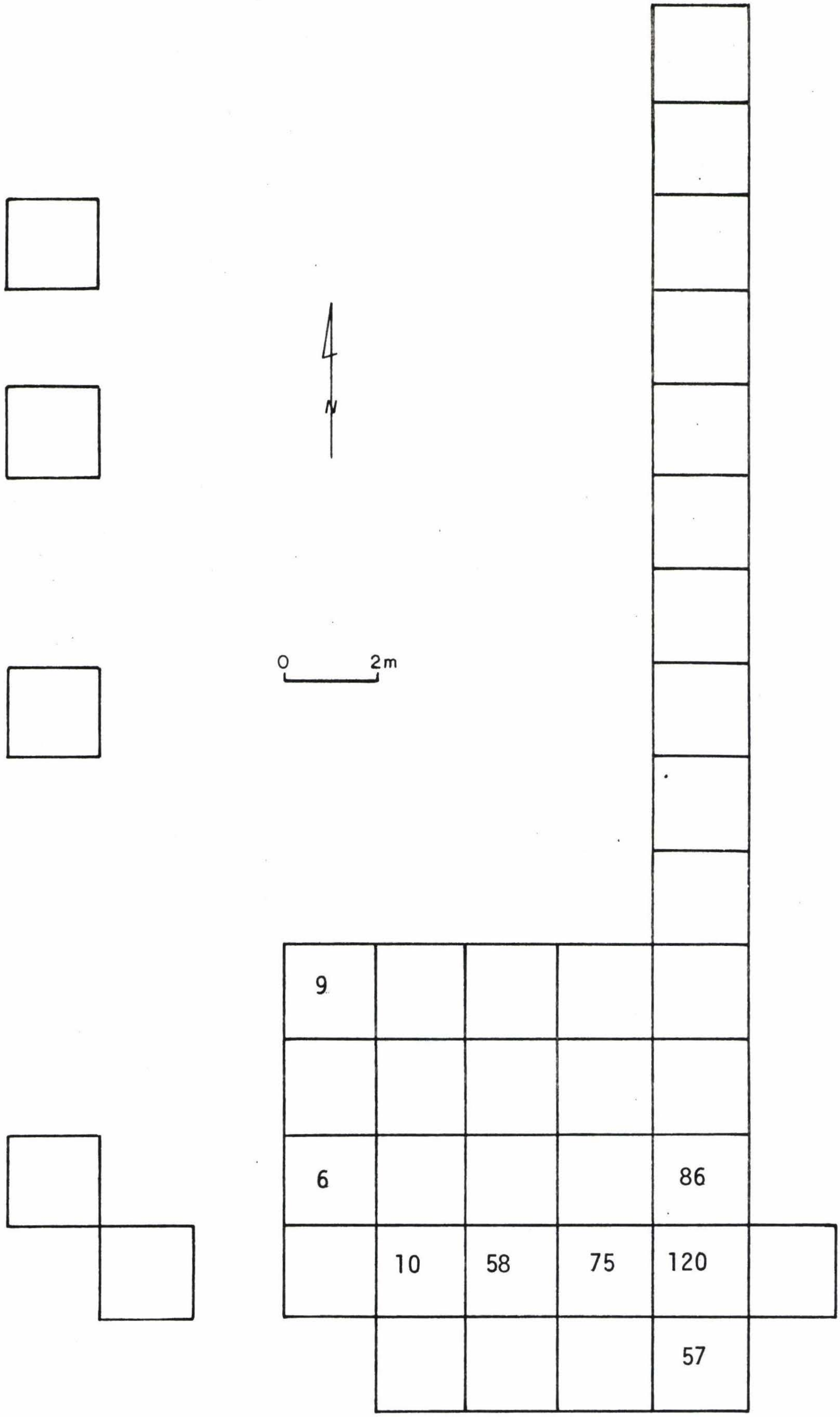
LEVEL 30-45 cm



LEVEL 45-60 cm



LEVEL 60-75 cm



LEVEL 75-90 cm